

# AMERICAN GAS ASSOCIATION MONTHLY

*December 1928*

Volume X

Number 12

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## Graf Zeppelin Goes Home with Fuel Derived from Natural Gas

By HERMAN H. HECK

## The New Competition—How to Meet It

By PROF. HERBERT B. DORAU

## Grasselli Medal Is Presented to H. J. Rose

## An Application of Electrical Precipitation to the Abatement of Smoke

By E. L. HALL

## 70,000 Visit Gas Exhibit at Steel Show

By D. W. CHAPMAN

## Research—Its Value in a Utility Industry

By ALEXANDER FORWARD

## Natural Gas Developments of Interest

By JUDGE H. O. CASTER



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420 LEXINGTON AVENUE, NEW YORK, N. Y.

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**VOLUME X**

**DECEMBER, 1928**

**NUMBER 12**

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**Greetings**

**1928**



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## Our Own Who's Who



### XLIII

W. Griffin Gribbel

**B**ORN Oct. 24, 1880, New York City. Attended William Penn Charter School (Phila.), University of Pennsylvania—B.S. in M.E. 1904. Worked for D. McDonald & Co., Albany, N. Y.; Indianapolis Gas Co., Indianapolis, Ind.; Consolidated Gas Co. of New York, as construction foreman. Sales manager for John J. Griffin & Co., subsequently manager.

Commissioned Captain, Corps of Engineers, U. S. Army, Oct., 1917. Commanded Company "A," 30th Engineers, subsequently First Gas Regiment, brigaded with British Expeditionary Force, 1917 to May, 1918. Wounded at Mazingarbe April 9, 1918; advanced to Major, and discharged December, 1918.

Has long been active member of A. G. A., having served on Executive Board and as chairman and member of many important committees. Was chairman of Manufacturers Section, 1919-20.

# AMERICAN GAS ASSOCIATION MONTHLY

Vol. X

DECEMBER, 1928

No. 12

## Graf Zeppelin Goes Home With Fuel Derived from Natural Gas

Louisville Gas & Electric Co. Supplies Entirely Satisfactory  
Gas Fuel for Successful Trip Across Atlantic

By HERMAN H. HECK

Chemical Engineer, Construction Dept., Louisville Gas & Electric Co., Louisville, Ky.

*"12,000 cu.ft Supplied for  
Balloon Ascension."*

Keeping in step with progress has long been the watchword of the gas industry. The sentence above, quoted from the record books of the gas company at Madison, Wis., dates back to September 13, 1856, and is its own proof of the gas industry's early interest in the development and commercial success of lighter-than-air craft. Today, as testified by Mr. Heck of the Louisville Gas and Electric Co., the gas industry played just as important part in aviation as it did in 1856 when it supplied the gas for the balloon ascension. Everyone knows that it was the Louisville Gas and Electric Co. which supplied the Graf Zeppelin with fuel for the return trip to Germany. That this fuel, a derivative of natural gas, did its job well is seen in the statement that "the fuel gas was entirely satisfactory and even superior to and higher in calorific value than their own fuel, Blau gas."—

EDITOR.

IT requires an active and far-seeing imagination to predict the future possibilities and uses of the apparently commonplace commodities with which we are more or less familiar as they apply to our everyday life. As an illustration of this

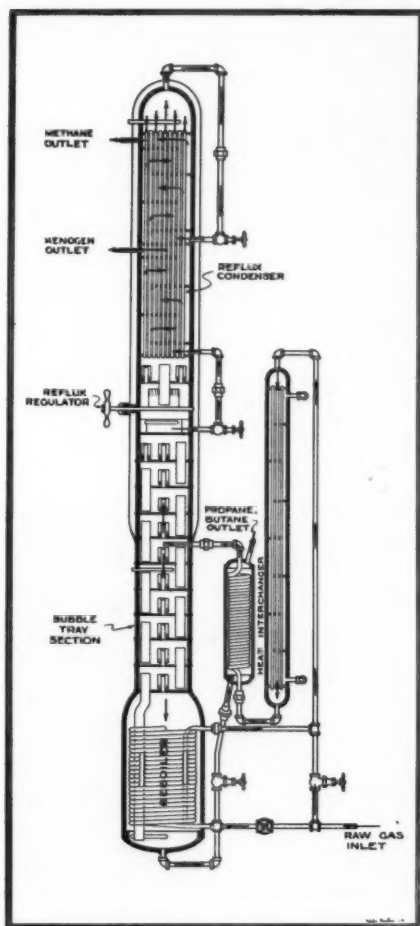


© World Wide Photos

*The Graf Zeppelin leaves Lakehurst, N. J., at 1:51 A.M., Monday, Oct. 29, and arrives at Friedrichshafen, Germany, Thursday morning. This picture shows the Zeppelin taking off loaded with fuel derived from natural gas*

—how few of us could have visualized or even have thought of the powerful motors of the gigantic dirigible, the Graf Zeppelin, a recent visitor to our shores, being operated with a component of the natural gas taken from the supply which furnishes the domestic and industrial needs of Louisville, Kentucky.

That this has been done successfully is attested to by the information supplied by Lieutenant Commander Z. W. Wicks, American Naval Officer in charge of re-



*Diagrammatic presentation of the manufacture of the Zeppelin fuel*

fueling the Graf Zeppelin at Lakehurst, N. J. In a telegram to the Kentucky Oxygen-Hydrogen Company he stated that the Germans found, by tests made preliminary to the return flight of the Graf Zeppelin to Germany, that "the fuel gas was entirely satisfactory and even superior to and higher in calorific value than their own fuel, Blau gas."

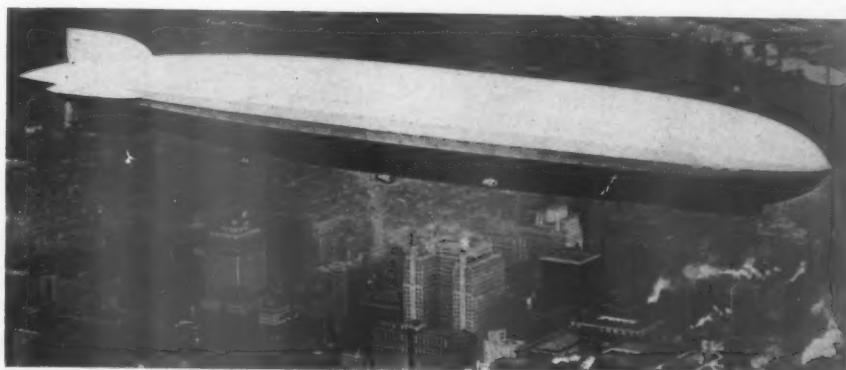
The American fuel gas, known as "Kenogen," was manufactured by the Kentucky Oxygen-Hydrogen Company, of Louisville, from by-product gas pro-

duced at the Winchester, Kentucky, natural gasoline plant of the Louisville Gas & Electric Company, a subsidiary of the Standard Gas & Electric Company.

Prior to the time that the Germans were seeking a fuel gas to be used in the Graf Zeppelin on its return flight from the United States, an investigation of the operation and production of the charcoal process natural gasoline plant at Winchester, Kentucky, was undertaken by the writer for the purpose of increasing the gasoline production of the plant.

Incidental to this investigation, an analysis made by the U. S. Bureau of Mines of the Eastern Kentucky natural gas, from which the natural gasoline is made, indicated that the gas contained approximately 76 per cent of methane and 20 per cent of ethane and heavier hydrocarbons such as propane, butane, hexane, etc. During the process of absorption of the gas in activated charcoal, practically all of the heavier hydrocarbons with some of the ethane are removed from the gas and are recovered as natural gasoline. The vapors evolved in the accumulator and storage tanks, together with the residue gas which remains in the absorbers after the absorption period, formed a by-product plant gas which is ordinarily recompressed and returned to the main gas line. A study of this by-product gas indicated that the ethane content was relatively high and of a sufficient quantity to be separated and purified by fractionation.

During the time that the above investigation was being carried on, the early summer of this year, the Zeppelin Company appealed to the United States Navy Department for assistance and cooperation in providing a gaseous fuel to refuel the Graf Zeppelin for its return flight from the United States to Germany. The original fuel with which the Graf Zeppelin was provided during its initial flight to the United States was "Blau gas," an artificial gas made by cracking crude oil. This had approximately the same weight as air and was carried under a slight pressure as a gas in balloonettes located under the inflating gas cells. The requirements

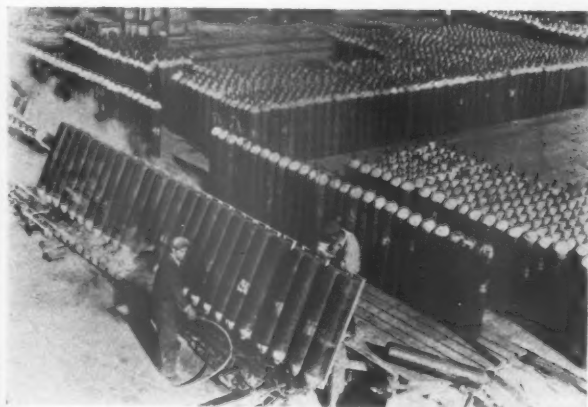


*The Graf Zeppelin sails majestically over Philadelphia, Pa., to complete the epic trip to the United States*

for a new supply of fuel gas to be taken on in the United States called for a gas of the same specific gravity and of the same, or greater calorific value than the "Blau gas." Ethane gas with a specific gravity of 1.038 and approximately 1763 B.t.u. per cu.ft. met these specifications, and, since it occurred to a considerable extent in the natural



*Sailors at Lakehurst prepare to discharge "Kenogen" into balloonettes of the giant airship*



*Cylinders of "Kenogen" being discharged through manifold and pipeline to refuel the Zeppelin for return trip*

gas of the United States, was selected as the fuel gas to replace the "Blau gas" for the return flight of the Graf Zeppelin.

When the Navy Department received the information regarding specifications for the special fuel and the request from the Zeppelin Company that the gas be supplied and on hand at

Lakehurst, N. J., awaiting the arrival of the airship, they immediately communicated with all sources of supply. Since even the development of the "Blau gas" by the Germans for use in the Zeppelin was difficult, the Navy Department realized that securing and supplying a sufficient amount of a special gas satisfactorily to replace the German gas would also be difficult. From among the number of possible sources only one organization was found which was willing to undertake the development, manufacture, and delivery of one million feet of the special gas within the short period of time allowed them. This organization was the Kentucky Oxygen-Hydrogen Company of Louisville, Kentucky.

Assisted by the information concerning the by-product natural gas available at Winchester, Kentucky, and the cooperation of the Louisville Gas & Electric Company, the Kentucky Oxygen-Hydrogen Company accepted the contract and agreed to furnish the gas delivered at Lakehurst within three months, or, on or before October 1.

The manufacture of this gas from the gas available at Winchester, Kentucky,

required the use of special fractionating equipment which would separate the desired gas, ethane, from the undesirable constituents. R. R. Bottoms, director of research for the Kentucky Oxygen-Hydrogen Company and an authority on the design and operation of fractionating equipment for the separation and purification of helium and liquified air products, designed the necessary equipment, and under his direction it was rapidly constructed and installed in a plant at Winchester, Kentucky.

The principal equipment of the plant consisted of the fractionating column, heat interchangers, high-pressure gas compressor, cylinder loading rack equipment, and gravity testing apparatus. A diagrammatic arrangement of the fractionating column and heat interchanger together with the direction of flow of the raw gas to the finished product is shown here.

The by-product gas from the gasoline plant was piped under 200 lbs. gage pressure to the fuel gas plant, approximately one-half mile away. The gas was first treated to remove all traces of moisture and then passed into coils in the

(Continued on page 777)

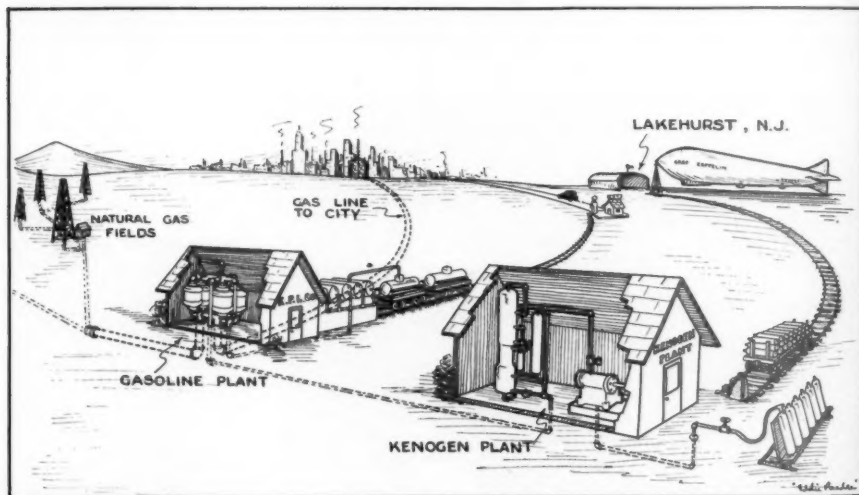


Diagram of the preparation and delivery of "Kenogen"—from the natural gas fields to the Zeppelin's hanger at Lakehurst, N. J.





*Prof. A. J. Hoskins, research associate, at work in analytical laboratory*



*H. B. Lurie, of research staff at Purdue, studies welding with city gas*

## Purdue University—What It Is Doing for the Gas Industry

By T. R. JOHNSON  
Publicity Director, Purdue University



*R. B. Leckie*

A MOST comprehensive program of gas research and instruction work has been started at Purdue University, Lafayette, Ind. The program has been made possible by the gift of \$10,000 a year for five years to the University by the Indiana Gas Association, to finance part of the cost of this work.

For several years a school or conference for gas metermen has been held by the engineering extension division at the university in cooperation with the Indiana Gas Association. At these schools lectures and demonstrations of benefit to metermen have been given by university instructors and meter specialists. The University also has cooperated with a few gas companies over the state in studies of specific problems.

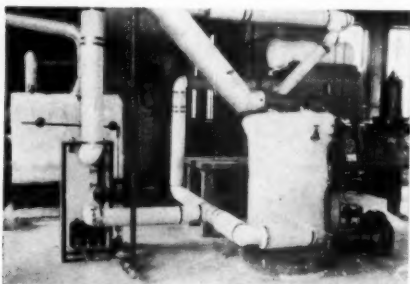
A year ago the Indiana Gas Association, appreciating the importance of this work, came forward with an offer to help establish a gas engineering department at the University. With this the work was expanded to a much broader basis. New

courses were added at the opening of school last September, and considerable new experimental work of value to the gas industry as a whole was inaugurated.

One of these research projects has to do with a study of the comparative values of gas, oil, coal, and coke in house heating. The chief object of this project is to find the comparative costs as they affect the householder. Certainly this program is of great value in any heating program as it affects directly the customer.

There are, however, other factors of real importance which are not approached so readily by technical methods. Among these are such items as availability in all seasons, convenience, and cleanliness—factors not easily translatable into dollars but nevertheless occupying a prominent place in the mind of the average householder of today. The weight given to these abstruse items varies with individuals, but it is a well-known fact that the tendency to stress them is increasing.

It is expected in this project to collect data on such factors as average installation and maintenance costs of plant, costs of the fuel and disposal of wastes (if any), minimum and maximum limitations in fuel consumption, effective capacities, readiness to meet radical fluctuations in



*Two of the house heating boilers used in Purdue experiments*

heat demand, average efficiencies, and average cost per unit of useful heat recovered.

Such data will be obtained and compiled for different types of house heating boilers and warm air furnaces. With some set-ups, two or more of these fuels may be burned as separate tests, and already three furnaces for the tests have been installed in the gas testing laboratory and preliminary work is under way.

In every heating plant there are unavoidable periods of preparation for service or the firing up periods. During such a time the consumption of fuel makes little impression on the temperature of the rooms in the house. Heat, however, is generated and some of it, at least, may be regarded as "placed in storage" to be recovered at the succeeding time of shutting down the plant. In the present investigation it does not seem feasible to determine the economics of the several fuels during these preliminary periods except by the following indirect method.

In each firing-up test data are taken for the time required and for the fuel consumption in bringing the plant from its room temperature condition to the desired stage of delivering useful heat. The measurement of the heat thus involved and stored in the plant itself must be postponed until the succeeding occasion of cooling down to the original condition when the metal parts of the plant—and, in the test with boilers, the water they

contain—will release their excess heat units.

Separate sets of data are being collected on each plant for such preparatory and cooling-down periods. The first series of investigations are covering tests of boiler units when operated on either low pressure steam or hot water systems.

In addition to this heat test, which it is expected will be the first of a series of experiments in studying the uses of gas, another important test is underway—that of the use of gas in welding. This form of fuel is being compared in efficiency with oxyacetylene, electricity, hydrogen, and such forms of heat for welding purposes. This work was made possible by the gift of \$7,800 from the Utilities Research Commission.

Another important project undertaken in cooperation with the Northern Indiana Public Service Company, is a study of the use of gas of a lower heating value standard. The company has offered the use of the gas plant at Frankfort, a city 25 miles from Lafayette.

The Indiana Public Service Commission has been asked by the Indiana Gas Association to give permission for this study, and Prof. R. B. Leckie, who joined the Purdue staff last school year as head of the Gas Engineering Department, will have general charge. Associated with him in this and other gas projects are Prof. A. J. Hoskins, research associate, and J. W. Bachman, student assistant. The Indiana regulation provides that gas of 570 B.t.u. be supplied, but permission is being sought to experiment with gases of a lower heating value. Plans are underway for this work, and the active participation of the commission's engineering staff will be enlisted.

In order to meet any eventuality, close supervision is to be maintained to see if customers' accounts increase in amount. It is planned to have tests of various heating standard values, each test to be carried on for a specified period and at the time when each reduction takes place, the

(Continued on page 778)

## An Application of Electrical Precipitation to the Abatement of Smoke

Interesting Installation Abates Nuisance at a Gas Plant

By E. L. HALL

General Superintendent, Portland Gas & Coke Co., Portland, Ore.



E. L. Hall

THE Portland Gas & Coke Company of Portland, Ore., manufacture a carbon briquet from the lamp-black residue from the generation of gas from fuel oil. This residue is removed from the raw gas by washing with water and is then filtered on vacuum drum filters. The sludge from the filters contains about 55 per cent of water which is removed together with some of the tar, tar oils, and naphthalene in rotary oil-fired drying kilns equipped with fans on the outlets. The moisture and tarry matter issues as a dense heavy yellow smoke from the kiln stacks and contains some free carbon particles. Intensive scrubbing with water fails to remove these objectionable features, which

cause numerous complaints from nearby residents.

As the drying involves the removal of an average of 155 tons of water per day and the smoke volume is 50,000 cu.ft. per minute, any attempt at complete condensation from a temperature of 150°F. would involve high capital investment in condensers or scrubbers and an enormous quantity of water, the pumping of which would be a very heavy operating charge. Investigation revealed that the tarry matter in the smoke consisted of finely divided particles held in suspension in the partially condensed steam dispersed in the air used for drying.

After a works scale test had demonstrated that the Cottrell electrical precipitator would entirely remove the carbon and tar present as far as any nuisance was concerned, a permanent plant was installed.

Most of the installations of this process



Fig. 1—Electrical apparatus for electrical precipitation process



Fig. 2—Electrical precipitator with current on.  
Compare with Fig. 4

made to date have been for the removal of dusts from cement kilns, metal smelting furnaces, and other processes where the products recovered are more than sufficient to cover overhead and operating charges and often paid for the entire installation in a few months. In the case of the Portland Gas & Coke Co. the tar recovered, being worth only a few cents a gallon, was not expected to do more than cover operating expense.

In principle the process briefly consists of passing the smoke between vertical plate electrodes between which are hung vertical wires in frames. A high potential uni-directional current is passed between the wires and plates in a corona discharge, causing the particles of tar and carbon to be ionized and collect on the plate electrodes and flow down into the base of the treating chamber. In the installation under consideration 440 volt 60 cycle alternating current is first transformed to approximately 50,000 volts and converted to direct current by rotary rectifiers. The apparatus for doing this is shown behind the wire guards in Fig. 1.

The collecting electrodes consist of corrugated steel plates spaced six inches apart, hung vertically in the lower portion of the concrete structure in Fig. 2. Between each pair of plates is a rectangular steel pipe frame carrying  $\frac{1}{8}$  inch steel wires spaced six inches apart vertically. The plates are supported on a steel frame

which connects to main framework of structure and are grounded. The frames equipped with wires are carried on a steel framework hung from high-tension insulators in compartments above the treating chamber which are shown in Fig. 3. The only connections between these compartments and the treating chambers are holes approximately seven inches in diameter through which run the frame supports which also serve as high-tension leads.

A fan located at left of building in Fig. 2 maintains a vacuum of approximately  $\frac{1}{2}$  inch water column on the treater. The slight infiltration of air through handhole covers on the insulator compartments prevents the smoke from entering the compartments and forming deposits which would short circuit the insulators.

The treating chamber is divided longitudinally into two sections with inlet and outlet dampers operated by the handwheels shown in the background of Fig. 3. This permits one-half of the installation to be shut down for cleaning without entirely interrupting the operation.

Troughs connected to a sump tank and located below the treater collect the tar which flows through seal sump. A float-switch-operated pump discharges tar to the main storage tank. When briquet manufacture is at full capacity, approximately 700 gallons of tar (dry basis) are produced per day. As formed the tar is emulsified with about 25 per cent of water which is subsequently removed, leaving a tar suitable for roofing and road construction purposes. The plant at this writing has been in operation for 60 days without any serious trouble developing.

Provision has been made for washing off the electrode plates by removing the covers shown in Fig. 3.

Power consumption is 35 k.w. and operation is performed by men in connection with other duties as it consists only of inspection and occasional wiping of insulators and rectifier discs. It is not anticipated that maintenance will be a large

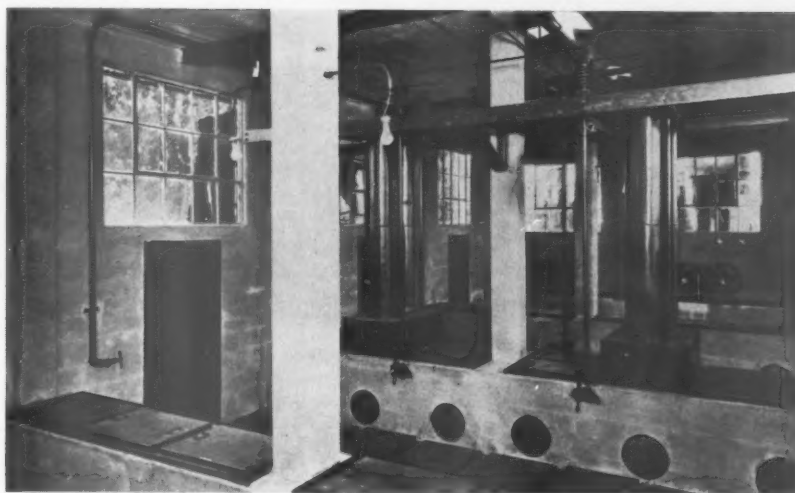


Fig. 3—Superstructure of electrical precipitator

factor as the tar forms good protection against corrosion of electrodes from the sulphur gases in the smoke.

In order to provide a permanent structure which would resist corrosion, the treating chamber and superstructure are of reinforced concrete. By carefully bonding the steel reinforcement and all metal structures with heavy copper wire, the presence of stray currents which might cause electrolysis or radio interference or danger of shock to operators has been avoided.

Damping coils placed in the high-tension

leads at the rectifier also prevent fluctuations in potential which might affect radio reception. Thorough tests have shown that no interference is perceptible beyond 500 feet from the treater.

The percentage of removal of solid and liquid particles is well in excess of 90 per cent.

Reference to Figs. 2 and 4 will show the gases issuing from the stack with the current on and off.

While the installation at Portland is somewhat novel in application, there are more than 700 large installations in the World and 298 in the United States.

The 298 installations are divided among the following industries.

Metallurgical .....	138
Cement .....	39
Acid Manufacture .....	28
Sludge Acid Recovery .....	22
Detarring .....	35
Chemical .....	16
Refineries, Blast Furnaces and Paper Mills, etc. ....	20
	<hr/> 298



Fig. 4—Precipitator with current off. Compare with Fig. 2

For those desiring to study the subject further the following references are given.

Electrical Engineering Features of the Electrical Precipitation Process—by G. H. Horne,



A.I.E.E. Paper presented at the Pacific Coast Convention of A.I.E.E., Vancouver, B. C., August, 1922.

Electrical Precipitation in Retrospect—by Walter A. Schmidt. *Industrial & Eng. Chem.* October, 1924, Vol. 16, page 1038.

Some Factors and Principles Involved in the Separation and Collection of Dust, Mist, and Fume from Gases—by Evald Anderson. *Trans. of Amer. Inst. of Chem. Engrs.* Vol. XVI, 1925.

Progress in the Art of Electrical Precipitation—by Walter A. Schmidt. Paper presented before Inst. of Chemical Engineers, Niagara Falls, August, 1928.

Further bibliographies form a part of the above articles.

### Average Age of Executives Is 58½ Years



G. B. Cortelyou



H. L. Doherty

**W**HAT Age Executives?" is the title of an interesting article in the October issue of *The Magazine of Business*. A random comparison made by using the ages of the heads of the 10 largest corporations in the country showed that the average age of the executives is 58½ years.

Two prominent gas men are used in this compilation—George B. Cortelyou, president of the Consolidated Gas Co. of New York, and Henry L. Doherty, president of the Cities Service Co. Mr. Cortelyou is 66 years old, and Mr. Doherty is 58.

The other executives used, and their ages, follow:

James A. Farrell, president of the United States Steel Corp., 65 years; Alfred P. Sloan, Jr., president of the General Motors Corp., 53 years; P. E. Crowley president of the New York Central Railroad, 64 years; W. W. Atterbury, president of the Pennsylvania Railroad Co., 62 years; W. B. Storey, president of the Atchison, Topeka and Santa Fe Rail-

### Beal Medal Winners



Louis Stein



L. J. Willien

**L**OUIS STEIN, Northern States Power Co., Minneapolis, Minn., and L. J. Willien, Byllesby Engineering and Management Corp., Chicago, Ill., were awarded the Beal Medal at the A. G. A. convention.

road, 70 years; Walter C. Teagle, president of the Standard Oil Company of New Jersey, 50 years; Gerard Swope, president of the General Electric Co., 55 years; and Walter S. Gifford, president of the American Telephone and Telegraph Co., 43 years.

The average is nearly the same, it was found, when a greater number of executives were considered in the calculation. Industrial corporations, it appears, are managed by younger men than are railroad companies.

### Steel Treathers' Show Offers Real Opportunity

**R**EPRESENTATIVES of many heat treating industrial plants of York, Pa., attended the annual convention of the American Society for Steel Treating, Philadelphia, Pa., Oct. 8 to 13, as guests of the Pennsylvania Gas and Electric Co.

The industrial department of the gas company decided to capitalize on the opportunity offered by the Steel Treathers' Convention, realizing that many valuable contacts could be made, according to George J. O'Neil, of the gas company.

"Fourteen companies sent their representatives in a bus provided by the Pennsylvania Gas and Electric Co.," Mr. O'Neil says. "Three other plants sent representatives the same day, and four more sent delegations on other convention days.

"Each representative expressed his appreciation, and all said that the day had been well spent."

The utility company entertained the delegates at a luncheon in Philadelphia.

Among the interesting exhibits at the convention which attracted a great deal of attention was that of the American Gas Association.





*Typical scenes of the A. G. A. exhibit at the Steel Treathers' convention*

## 70,000 Visit Gas Exhibit at Steel Show

**A. G. A. Booth Reaches Record Audience at Philadelphia Convention of A. S. S. T.**

**By D. W. CHAPMAN**

**The Peoples Gas Light and Coke Co., Chairman, Committee on Display and Contact with National Industrial Organizations**



*D. W. Chapman*

**T**HE complete story of the use of gas fuel in industry was forcefully brought to an audience of nearly 70,000 at the recent Philadelphia convention of the American Society for Steel Treating, as a result of the activities of the Industrial Gas

Section's Committee on Display and Contact with National Industrial Organizations. Gas furnace and auxiliary equipment valued at more than \$62,000 were exhibited under the auspices of the American Gas Association in a booth which occupied more than 7,000 sq. ft. of space in the exhibition hall used by the steel treater's association during the week of Oct. 8-13.

In previous reports the committee has pointed out to the industry that some form of cooperative endeavor is needed to bring to the great industry represented by the American Society for Steel Treating the many advantages of gas as an in-

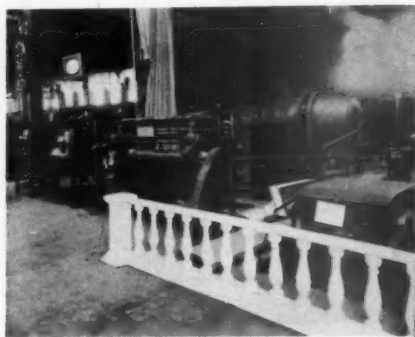
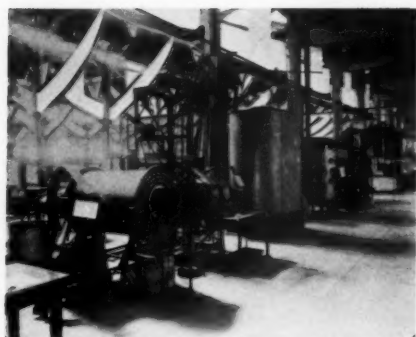
dustrial fuel. It is through this cooperation that results are obtained which would be most difficult to achieve through any individual efforts that the manufacturers might make.

In formulating plans for the 1928 exhibit the committee decided to proceed as it has for the past two years, when results were especially successful. The following manufacturers participated in the exhibit, and their equipment was on view in specially arranged sections of the A. G. A. booth:

### THE EXHIBITORS

American Gas Furnace Co.; Eclipse Fuel Engineering Co.; Gehrich Indirect Heat Oven Co., Inc.; The C. M. Kemp Manufacturing Co.; E. Leitz, Inc.; The Alexander Milburn Co.; Stanley P. Rockwell Co.; Sullivan Machinery Co.; Surface Combustion Co.; and Wilson-Maeulen Co., Inc.

Photographs accompanying this article show the gas exhibit to be well-arranged and executed. The space occupied was especially desirable, and it is probable that every one of the delegates to the conven-



tion visited the exhibit at one time or other.

R. M. Martin, director of displays, Consolidated Gas Co. of New York, was charged with the arrangement and decoration of the exhibit, and the splendid appearance of the show is due to his efforts. Oil paintings loaned by his

company were effective. A uniform and striking plan was worked out which met with general commendation, as is testified in the following letters received by the committee:

"For my part you may be assured that I think the attractive display and special decorations were one of the high lights of the show."

"The display from an artistic sense and from location is the best that I have seen at a Steel Treaters' show, and I think everyone agreed that the A. G. A. section was the outstanding exhibit."

While the selection of equipment to be displayed was left to the discretion of the manufacturer, it was brought out by the committee that practically all manufacturers would benefit greatly by showing large pieces of equipment which, from the



*Gas is brought to the attention of the Steel Treaters*

standpoints of durable construction, thorough insulation, and accurate heat control, would tend to bring home to the audience the modern trend in gas furnace manufacture.

During the week that the exposition was in progress, 64,870 people visited the exhibits.

More than half of the members of the American Society for Steel Treating were present, this figure being 2,714. Official figures released by the Society prove that there was a substantial gain registered over the number registered at the 1927 convention at Detroit, Mich., and point definitely to a steadily growing interest in this feature of the Society's work.

Because of a special arrangement of the programs of the A. S. S. T. and the American Gas Association, which was having its annual convention the same week at Atlantic City, N. J., a large number of industrial gas engineers visited the exposition on Friday, Oct. 12. At the Steel Treaters' session on that day R. G. Guthrie, metallurgist of The Peoples Gas Light and Coke Co., Chicago, Ill., read a paper dealing with the effect of furnace

atmospheres in the heat treatment of steel.

The committee which has had this work in charge believes that the results obtained have been sufficiently valuable to warrant a continuation at least, and an extension if possible, of the policy of co-operation with national industrial organizations that has been in force for the last two years.

The many benefits of active cooperation by the gas industry with allied groups and national organizations are at once apparent when a survey is made of the results secured at three conventions of the American Society for Steel Treating.

The members of the Committee on Display and Contact with National Industrial Organizations are:

D. W. Chapman, *chairman*, The Peoples Gas Light and Coke Co., Chicago, Ill.

R. B. Burr, Logan Gas Co., Columbus, Ohio.

H. S. Christman, The United Gas Improvement Co., Philadelphia, Pa.

E. B. Dunkak, The C. M. Kemp Mfg. Co., Baltimore, Md.

E. M. Rowand, Philadelphia Suburban-Counties Gas and Electric Co., Chester, Pa.

## Dr. Lander Explains Coal and Gas Research

DR. CECIL H. LANDER, director of the Fuel Research Department of Scientific and Industrial Research, London, England, reviewed the progress that had been made in fuel research during the past few years in a special interview in New York while on the way to Pittsburgh, Pa., to deliver a paper at the Coal Conference.

Dr. Lander's opinion of low temperature distillation is that this process will have its greatest success as a part of the gas industry. He explained that local conditions may make low temperature distillation processes practical in some places, but that generally speaking the development belongs to the gas industry. While mine mouth plants may be successful under certain conditions, it will cost as much to transport the coke to the market as it would the raw coal, and gas produced at the mine mouth has much less value than that produced in conjunction with a gas plant.

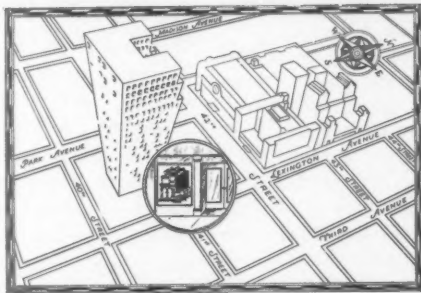
Dr. Lander described the particular process he is working on, saying it is a simple one. In England the work is directed to securing a house fuel, such as a light coke heavy enough to stand transport. He further stated that 50 years from now the general use of gas fires in England may be universal. He said that the use of gas for house heating, which is being promoted in the United States, has not seen any large growth in England.

Dr. Lander also made the statement that in

(Continued on page 813)



The Consolidated Gas Company of New York has recently opened a permanent exhibit of modern gas equipment on East 41st St., just off Park Ave. Among the appliances and subjects exhibited are modern automatic gas



ranges, house heating by gas, water heating by gas, and gas refrigerators. There are many equipment displays in the building, which goes by the name of the Architect's Sample Building.

## Final Report on Laboratory Approval Seal

Executive Board Has Approved This Report of the  
Committee on Economic Aspects of Seal

By B. J. MULLANEY

Chairman, Committee on Economic Aspects of Laboratory Approval Seal

**A**T the meeting of the Executive Board and Advisory Council in Atlantic City in June, the Committee on the Economic Aspects of the Blue Star Seal made an exhaustive report embodying certain conclusions and general recommendations and that report was printed in the July number of the AMERICAN GAS ASSOCIATION MONTHLY. It is there as a reference if anybody cares to go into the details of that report. The Executive Board at that time accepted the report of the committee to date and then sent it back to the committee, suggesting that it work out in detail the general recommendations which the committee at that time made in relation to the Blue Star Seal. The committee has worked further on that and is now prepared to recommend as follows:

First, that the symbol or insignia of a gas appliance indicating that it has been tested and approved by the testing laboratory shall hereafter be referred to as the Laboratory Approval Seal and not as the Blue Star Seal.

Second, that hereafter in connection with the appearance of that symbol on any gas appliance, there shall be used along with it a legend reading substantially as follows:

"This Laboratory Approval Seal is a guarantee of compliance with basic national requirements for safety—American Gas Association, Inc."

Third, it is recommended that the manufacturers in presenting their appliances for test by the testing laboratory, shall hereafter, by way of making these recommendations effective, be required to agree that in their sales work and exploitation of their appliances they shall comply with the findings that have been made as to the use of the legend or the interpretation of the legend, and shall not ex-

ploit the seal as a commercial mark of quality.

In order to give further effect to these recommendations, certain steps have already been taken and others of similar character will follow, to give publicity to these subjects. The Commercial Section is prepared to revise, as soon as the Committee's recommendations are approved, all of the advertising matter and literature now out, which was prepared in connection with the Blue Star Home Campaign. The Commercial Section will also include in the pending or current course in salesmanship training, a chapter on the significance of the Laboratory Approval Seal, and hence the existence thereof.

The Publicity and Advertising Section has in hand a standard lecture on the true significance of the Laboratory Approval Seal which will be printed in the A. G. A. MONTHLY and circulated. Copies of it will be available for the use of manufacturers and gas companies and all others who are concerned in the exploitation of or the interpretation of the seal.

The committee further recommends that the Laboratory Managing Committee, in conjunction with Headquarters and under the advice of counsel, take such steps as may be necessary to copyright or otherwise protect the Laboratory Approval Seal.

It is also recommended, for the consideration of the Manufacturers Section, that the manufacturers of gas appliances constitute themselves a "vigilance committee," so to speak, and check up on how the exploitation and use of the Laboratory Approval Seal is carried on by manufacturers, by dealers and by gas companies; and that they report infrac-

(Continued on page 811)

## Graselli Medal Is Presented to H. J. Rose

Coveted Medal Goes to Author of Paper on Coal Preparation in the Manufacture of Gas and Coke



H. J. Rose

THE famous Graselli Medal was presented to H. J. Rose, assistant director of research, The Koppers Co., Pittsburgh, Pa., at a joint meeting of the Society of Chemical Industry, American Chemical Society, Societe de Chemie Industrielle, and American Electrochemical Society held in New York, N. Y., on November 2.

Mr. Rose received the medal for his paper entitled, "The Importance of Coal Preparation in the Manufacture of Gas and Coke." The Graselli Medal is awarded for the best paper presented before any meeting in which the Society of Chemical Industry has cooperated.

W. H. Fulweiler, of The United Gas Improvement Co., Philadelphia, Pa., presented the medal to Mr. Rose. Mr. Fulweiler is himself a holder of the medal, having received it in 1922. Mr. Rose presented a paper entitled "Coal—Cinderella of the Chemical Industry," after Mr. Fulweiler had delivered his speech of presentation, and the meeting closed with an address by Prof. J. T. Ward, of Massachusetts Institute of Technology, on "Coal as a Source of Energy."

In presenting the medal, Mr. Fulweiler said that henceforth coal must be regarded not only as a fuel for direct combustion in the generation of light, heat and power, but also as a chemical raw material which will be transformed to an increasing extent into other fuels of higher form value and a wide variety of synthetic organic chemicals.

Mr. Fulweiler reviewed the progress made in the carbonization of coal, and said that today the gas and coking in-



The Graselli Medal

dustries are converging rapidly. The production of merchantable domestic coke is now of great interest to gas manufacturing enterprises, he stated, and the tendency is increasing. He predicted that in the relatively near future the greater part of domestic heating requirements will be furnished in the form of gas and coke.

In presenting the medal, Mr. Fulweiler spoke as follows of Mr. Rose and his contributions to the advancement of science:

"Harold J. Rose comes from South Dakota and is proud of it. The stern necessities of his early life in the western prairie country developed the habits of industry and persistence which have characterized all his work. He was a real dirt farmer before he became a chemist; and he has kept his feet on the ground in all his research and development work. His papers are valued because of the useful information that they contain. In 1919 he joined the staff of The Koppers Company Laboratories at the Mellon Institute where, under the able direction of F. W. Sperr, Jr., he turned his attention to research on coal and coke which he has continued to the present time. In one of his first papers he showed that the fusibility of the ash from a given coke was the same as that of the coal from which the coke was made. This work led to the careful selection of coal mixtures for making a domestic coke that would not cause trouble from clinkering. Subsequently he worked out improvements in the methods for determining volatile matter and the



true specific gravity of coke. With Mr. Sperr he developed an electric furnace for determining the by-product yields obtainable from coal. This apparatus is used both in the United States and foreign countries.

"Fuel technologists have long recognized the unsatisfactory state of the methods for evaluating the physical properties of coke and correlating them with the methods of manufacture, and the performance of coke in use. Mr. Rose attacked this problem from a fundamental point of view. He developed a method of photographing polished surfaces of coke, which showed the macrostructure of the coke, i.e., the size and number of cells and the thickness of the cell walls. The Rose method for studying coke macrostructure is now used generally in many countries. His systematic studies of the chemical and physical characteristics of coking coals, and of various carbonizing conditions have been of basic value in the development of the coking industry, particularly in enabling the coke manufacturer to produce the high quality product now coming into the domestic market. The paper which won the Graselli Medal was one of a group based on this research which involved observations and results from hundreds of full-scale coke oven tests on many different coals and coal mixtures. His classic paper on 'The Selection of Coal for the Manufacture of Coke' has been widely reprinted and translated into foreign languages.

"With all Mr. Rose's busy application to coal and coking problems, he has always found time to participate in the work of fuel organizations. He is an active member on the committees of the American Institute of Mining and Metallurgical Engineers, the American Gas Association, The American Society for Testing Materials, The American Chemical Society, the Eastern States Blast Furnace and Coke Oven Association, and the Coal Research Club of London. His study of the fundamental properties of coal led to his unanimous selection as chairman of the technical committee on the Scientific Classification of Coal. This is the leading committee in the American Engineering Standards Association Sectional Committee on Coal Classification. This is a splendid record of achievement and it deserves a fitting recognition."

### A. S. M. E. Meets in New York December 3-7

THE annual meeting of the American Society of Mechanical Engineers will be held at New York, N. Y., Dec. 3-7. Among the papers and reports to be presented are:

"Balancing Heat and Power in Industrial Plants," by Robt. V. Kleinschmidt.

"Material Handling Problems in the Public Utility," by John C. Somers.

### Scientists Attend Coal Luncheon

FOREIGN and American engineers and scientists attended a luncheon tendered by the American Institute at the Hotel Commodore, New York, N. Y., on Nov. 10, to hear the general subject of coal discussed.

Dr. Thomas S. Baker, President of Carnegie Institute of Technology, and chairman of the Second International Bituminous Coal Conference, presided. The speakers were Dr. Friedrich Bergius, of Heidelberg, Germany, Dr. Cecil H. Lander, director, Fuel Research Board, London, England, and Dr. A. C. Fieldner, U. S. Bureau of Mines.

Dr. Bergius took as his subject the development of the coal liquefaction process which bears his name. He traced the development of the work from the start to the present time. Dr. Bergius stated that the work was begun when studying the transformation of vegetable matter to coal. Considerable gasoline from coal had been marketed last year, he said.

Dr. Lander described graphically the general fuel research work now being carried out in Great Britain. He explained the work of the Fuel Research Board, which was started in 1917.

Dr. Fieldner said that science and engineering can have no greater objective than the complete elimination of all smoke. He continued as follows:

"I believe that the gas industry is now on the threshold of great expansion. The average increase in use of manufactured gas has been 6 to 7 per cent per year during the last eight years. However, the amount of annual increase has been gaining in recent years, and a considerable increase in the demand for house heating is developing. Likewise the use of coke for domestic fuel is increasing.

"During the last fifteen years petroleum and natural gas have been replacing coal, reaching a total of approximately 30 per cent of our aggregate mineral fuel production in 1925. I believe that in the future oil will be conserved more and more for gasoline and internal combustion engine fuel and that smokeless solid fuels and especially gas will be the logical agents for domestic heating. As the oil supply diminishes, coal will be processed to an increasing extent to augment the supply of liquid fuel. At the present time the gas industry uses large amounts of oil for gas production. Scientific research has made it possible for the gas industry of the future to become a transformer and purveyor of heat energy. There need be no lack of either gaseous or liquid fuel as long as the nation's coal supply endures."



## Coke Wins by a Landslide

Consumers Power Co. Capitalizes on Interest in Politics in Selling Coke

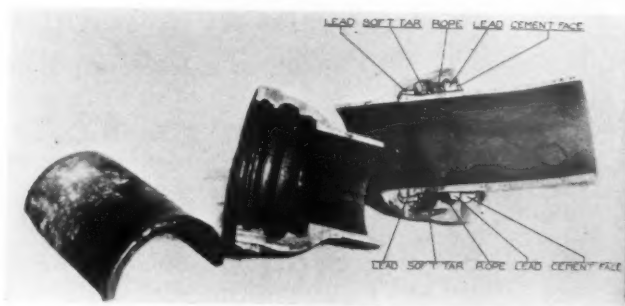
**D**URING October the Consumers Power Co., Jackson, Mich., created great public interest in the use of coke with the ten newspaper advertisements reproduced on this page. The many catch lines were designed to capitalize current interest in the national election, according to Donald M. Mackie, who prepared the advertisements. The advertisements were used in newspapers covering 23 communities.

Mr. Mackie says that customers' coke sales run in the neighborhood of 150,000 tons, and "the particular advertising aim is to keep present users on the repeat list and to bring new users into the family." The advertising was supplemented by circulars and by a specialty sales organization in the principal communities, the exclusive time of this organization being devoted to the development of the coke business.

<p><b>On October 2nd We Will Announce Our Favorite Candidate</b></p> <p><b>BURNING ISSUES—</b></p> <p>The election won't settle all the burning issues. Winter is still ahead—and the "burning issue" right now is the matter of heating your home.</p> <p>Our candidate leads the field on that question. You or someone else who have progressed with....</p> <p><b>THIS PLATFORM</b></p> <ol style="list-style-type: none"> <li>1. MORE HEAT FOR YOUR MONEY.</li> <li>2. CLEANER BURNING.</li> <li>3. LESS WORK.</li> </ol> <p><b>VOTE FOR CONSUMERS COKE</b></p> <p>OFFER SATISFACTION IN ALL TYPES OF FURNACES For Better Heat, Cheaper Prices, Less Work CONSUMERS POWER Company</p>	<p><b>Announcing Our Favorite Candidate "VOTE FOR A Clean Candidate"</b></p> <p><b>THE TAX QUESTION—</b></p> <p>Do you want LESS TAX on your pocketbook for home heating....</p> <p>LESS TAX on your home for cleaning—and heating it clean....</p> <p>LESS TAX on your strength for furnace tending....</p> <p>LESS TAX on your good nature by avoiding less money wasted in soot? Then....</p> <p><b>VOTE FOR CONSUMERS COKE</b></p> <p>OFFER SATISFACTION IN ALL TYPES OF FURNACES For Better Heat, Cheaper Prices, Less Work CONSUMERS POWER Company</p>	<p><b>Our Favorite Candidate .... VOTE FOR CONSUMERS COKE</b></p> <p><b>A Clean Candidate</b></p> <p><b>.... PLATFORM MORE HEAT FOR YOUR MONEY CLEANER BURNING LESS WORK</b></p> <p><b>THE LABOR VOTE—</b></p> <p>If you have a home to heat—then you're in on the Labor Vote.</p> <p>If you want LESS LABOR in keeping your home warm at a reasonable cost....</p> <p>LESS LABOR in keeping the home clean and comfortable....</p> <p>LESS LABOR in having less soot to shovel and....</p> <p>LESS LABOR for the woman in having other things during the day.... then you'll</p> <p><b>VOTE FOR CONSUMERS COKE</b></p> <p>OFFER SATISFACTION IN ALL TYPES OF FURNACES For Better Heat, Cheaper Prices, Less Work CONSUMERS POWER Company</p>	<p><b>Our Favorite Candidate .... WET or DRY—</b></p> <p>You'll have something mighty good in your cellar when you</p> <p><b>VOTE FOR CONSUMERS COKE</b></p> <p>OFFER SATISFACTION IN ALL TYPES OF FURNACES For Better Heat, Cheaper Prices, Less Work CONSUMERS POWER Company</p> <p><b>ARE YOU EASY TO SOOT?</b></p> <p>When you judge all the candidates for filling your life—make some of them. Will you be SOOTIER or SUETER?</p> <p>Our candidate never catches SOOT—be sure to the furnace and give you a hot advertisement—don't come in the house and spread his SOOT all over walls and furniture.</p> <p>For a clean candidate—don't vote sootier....</p> <p><b>VOTE FOR CONSUMERS COKE</b></p> <p>OFFER SATISFACTION IN ALL TYPES OF FURNACES For Better Heat, Cheaper Prices, Less Work CONSUMERS POWER Company</p>	<p><b>HOT AIR—</b></p> <p>Buy what you will about speeches, this candidate has a barrel of hot air that will make you feel good all winter.</p> <p>Just put him in your furnace and let him make use of his red hot speeches—this kind of hot air sets the rest of living.</p> <p>Save money and....</p> <p><b>VOTE FOR CONSUMERS COKE</b></p> <p>OFFER SATISFACTION IN ALL TYPES OF FURNACES For Better Heat, Cheaper Prices, Less Work CONSUMERS POWER Company</p> <p><b>REPEAT VOTING IS O.K.—</b></p> <p>It's a great day when a candidate is so popular that some come back, and vote over and over....</p> <p>That's what's happening with our candidate for voter of BURNING MATTERS—and repeat are O.K. in this campaign.</p> <p>Why do they vote back, after all? Why not vote for the man that makes use of BURNING HEAT? Because this platform means savings and satisfaction.</p> <ol style="list-style-type: none"> <li>1. MORE HEAT FOR YOUR MONEY.</li> <li>2. CLEANER BURNING.</li> <li>3. LESS WORK.</li> </ol> <p><b>VOTE FOR CONSUMERS COKE</b></p> <p>OFFER SATISFACTION IN ALL TYPES OF FURNACES For Better Heat, Cheaper Prices, Less Work CONSUMERS POWER Company</p>
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Reproductions of ten newspaper advertisements used by the Consumers Power Company to stimulate the sale of coke. The advertisements were large in size and occupied prominent space in the papers

Photographs  
of  
Gas Main  
Joints  
Laid in Chicago  
during  
the Early  
Nineties



Pictures which reveal the construction of the joints Mr. Mix writes of in the accompanying article. Picture "A" is at the top. In the center, left, is picture "B-1," and, right, picture "B-2." Picture "B-3" is shown at the bottom. The author gives a history and description of these joints and those shown in the other illustrations in his article

## Some Unique Gas Main Joints Installed in Chicago in the Early Nineties

By M. I. MIX

Superintendent of Distribution, The Peoples Gas Light & Coke Co., Chicago, Ill.



M. I. Mix

WHEN the "old timers" get together, reminiscences of the past are bound to occur, especially if the "old timers" are gas men. It behooves the younger generation to sit up and listen to past history, if distribution subjects are being discussed, for underground plant which has been in service for years is bound to be heard from again some time in the future in cases of trouble or otherwise.

The subject of gas main joints was being discussed not long ago by some "old timers," and mention was made of some peculiar joints laid about the time of the Chicago World's Fair, in 1892. These joints have never been heard from since, although they are still in service. One of these was a combination of tar and lead joints, and the other was a flexible lead sleeve joint.

The lines in which these two types of joints were installed were investigated, and it was found that there was no record

of a leak having been repaired on either line. A joint was dug up and cut out of each line to determine the condition of the joints, and they were found to be in perfect condition. The unique construction of the joints will undoubtedly be of interest to distribution men throughout the country, since they were laid so long ago and since they have successfully withstood leakage under conditions of heavy traffic.

Photograph "A" shows the joint which was cut in half lengthwise of the pipe. The spigot end of the pipe was made with a bead similar to present day "bell and spigot" pipe. The bell end, however, was made more bulging on the outside, and had a series of annular rings within to provide recesses for holding the various elements used to make up the joint. Before ramming the spigot end into the bell, evidently a ring gasket of lead was inserted in the bell to close the inside opening to and keep the tar or pitch from flowing inside the pipe. After the spigot was inserted in the bell, a ring of jute packing was rammed part way back, leaving a cavity between it and the lead end ring. Tar was next poured into the cavity



Picture "B-4"

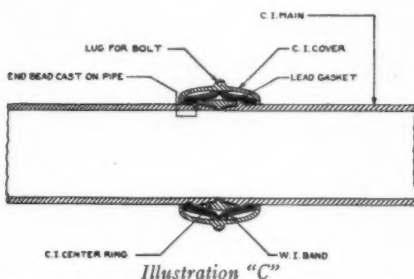


Illustration "C"

through a hole in the outside of the bell which was later plugged. A regular lead joint was then poured against the yarn and caulked, after which the joint was faced with cement. This joint no doubt deserves the title of a true "combination joint" if there ever was one made.

Photograph "B" was recalled under the name of "Pante-Cullen" joint, and there is great uncertainty regarding both the name and the origin of the joint. A sketch of the cross section of this joint is shown in illustration "C" to make the description more graphic.

The pipe itself was cast with a peculiar bead back about two inches from the end of the pipe, that portion of the pipe between the bead and the end being slightly tapered to receive a center ring made of cast iron. A lead sleeve about one-quarter inch thick with its center rounded out a couple of inches was placed over the end of each pipe, and center ring, and a wrought iron band forced over its extremities confining the lead sleeve against the bead of the pipe, and forming the necessary outward restriction for caulking the end of the lead ring. Over the entire joint was placed a split cast-iron cover held together by small bolts to protect the lead joint mechanically. The joint proved very flexible, and could be moved at ease by hand through an angle of approximately 30°. No strain was placed upon the joint itself, the rounded portion of the lead sleeve taking the entire movement, and being protected adequately from mechanical and other injury by the outer cast-iron cover. The joint above, exclusive of the beads on

the pipe, had six separate parts and must have been rather expensive to install.

The two joints described are not advocated as types to follow in designing present day distribution systems. The flexible characteristic which they possess, no doubt, is responsible for their remaining tight throughout their life; this characteristic should be emulated wherever possible since present day heavy traffic conditions in city streets, vibration and settlement of mains all effect leakage of joints, as well as temperature changes which cause expansion and contraction.

### "Intangible" Values of Gas Fuel Become More Valuable

THE art of heat application in industries is developing at a rapid rate, and the greater the realization of the inefficiency and waste of present methods of the production and utilization of heat, the more the so-called intangible advantages of gas become practical and actual, writes Charles C. Krausse, industrial fuel department, Consolidated Gas Electric Light and Power Co. of Baltimore, Md., in the October issue of the *American Enameler*.

Mr. Krausse is vice-chairman of the Industrial Gas Section of the A. G. A.

The following paragraphs are taken from the article:

"Cheap fuel is a thing of the past. Higher fuel costs increase the need for keeping pace with the best furnace practice. Fuels, furnace construction, etc., which are viewed reluctantly today, may become a necessity tomorrow.

"A gaseous fuel replacing a solid or liquid fuel cannot be efficiently applied by merely the substitution of gas in the fire box or combustion chamber. A detailed study of furnace design and operation is required."

### THE SALES COURSE

I EXPECT the Sales Training Course which our company has contracted for to do more for myself personally and my salesmen than any other course we have ever taken up.

"It will enable us to better ourselves in the expansion of our own business, and if it does this it will have accomplished its purpose."

—Letter from a prominent gas company sales manager.

## Research—Its Value in a Utility Industry

By ALEXANDER FORWARD

Managing Director, American Gas Association



Alex. Forward

SCIENCE is measurement," once said the great scientist Lord Kelvin. In this age of science, it is as true in all other great industries as in the public utility field that the correct measurement and appraisal of the exact facts of the past and present afford the truest index of future developments. Those who realize the vital necessity for measurement are equipped for present-day needs; the others are not. Recognition of this fact is one of the outstanding developments of our time.

The American Gas Association has shared in this insistent demand for measurement and appraisal. From every quarter within the industry the spirit of research has made itself evident. A committee member will have something to say in a meeting about needed facts and finds what is to him a surprising accord in his views. Perhaps the subject is discussed again and again, and at last the demand has become so insistent that recommendations are formulated and made to the managing committee of the Association's section, and there carefully reviewed and studied. Finally, from this or from that section there come to the Executive Board requests for approval and for appropriations for research in many directions, and which those who are the most interested in the particular subjects deem

of great importance to the industry as a whole.

The directors of the Association are consequently in continuous receipt of requests for approval of research activities from many quarters, all good in themselves but naturally the total is in excess of the Association's resources. It is wholly unnecessary for the Board to take any steps to stimulate the research spirit; on the contrary, it has to make difficult decisions as to the relative value of the proposals and to choose between them to the extent of the organization's ability to finance them.

A result of this general and growing demand has been the organization within the Association of a Committee on Coordination of Scientific and Marketing Research, which acts as a clearing house for all proposed undertakings. This committee has recently completed for the Executive Board a survey of current requests for research appropriations and has prepared a report for the coming Association year, with recommendations as to what research items should be undertaken and financed



Scientific research advances the service the utility renders

by the industry.

In making this survey the committee carefully weighed the relative merits of all suggested research projects with regard to their value to the industry as a whole and recommended for immediate undertaking those that will have the broadest influence on the growth of the industry.

The gas industry has had its vital problems as you have had. It is within the

Presented at Annual Convention of American Electric Railway Ass'n, Cleveland, Ohio, Oct., 1928.

knowledge of all that the 90 per cent *lighting* load has been transformed into a 92 per cent *heating* load, marking a nearly complete abandonment of the field in which gas was formerly supreme. Yet today the gas business is greater in magnitude, serves more people, and is a more vital necessity in the civilization of the time than ever before.

Since this complete transformation of utilization of its product the manufactured gas industry has increased its sales 400 per cent and within the last 10 years, a period when nearly all the gas sold has been for heating, sales to its customers have increased 70 per cent *per capita*. In more than 20 years there has been a steady annual increase in sales and in income, and the stability of our securities is fully demonstrated in the financial markets.

Research has played an important part in the development of huge super-gas systems, whereby cities and towns that are widely separated are supplied with gas. These super-gas systems are among the engineering marvels of the day. A number of years ago the opening of a two-inch line five miles long to supply Titusville, Pa., was a cause for celebration. Today natural gas is heating houses and cooling refrigerators nearly 500 miles from the wells, being pumped at a pressure of 400 lbs. per sq.in. in pipes more than 20 inches in diameter. Some of the gas used in Cleveland is brought through a super-gas system which has its origin in Kentucky, 350 miles from here. Research now being sponsored by the American Gas Association in high-pressure long-distance distribution will contribute largely to increasing the size of super-gas systems to 700, 800 or maybe 1,000 miles.

I say this, not to boast of the industry's success, but as an introduction to the statement that this remarkable showing is due to the application of scientific research to our business. We are constantly developing new uses and new

markets for our product, and we are doing it through the process of patient research.

It must be obvious that my use of the term research does not in any sense limit it to the technical field. Of the 64 separate research projects now being conducted by the American Gas Association under the supervision of its Executive Board, 11 relate to marketing or salesmanship, and are therefore non-technical. Six of our research undertakings relate to accounting. We are perhaps the most technical of all the public utility services, but research, often associated in the public mind with laboratory experiments, is just as vital to the study of selling our product to our customers, and to the correct interpretation of the statistics of the industry, and in scientific rate making, as it is to the development of efficient gas burning appliances and of methods of manufacture and of distribution.

A statement which came out of the last Imperial Conference of the statesmen of Great Britain and her self-governing Dominions that "scientific research is no longer a luxury—it is a necessity of existence," is true of the electric railway industry as well as of the gas industry. Science is as truly employed in making our service of the greatest possible value to our customers, and in effectively utilizing research in the absorbing problems of the public needs and desires of our times, as in the quiet of a chemical laboratory.

I am giving you no news when I say these things, and I am fully aware of the splendid service rendered to your industry by the collection, study, and dissemination of facts by the Service Bureau of the American Electric Railway Association. That is research. I have, too, had occasion to note with admiration the amount of excellent material collected and printed in the reports of your committees. That is also research.

Your industry is, to a certain extent, like ours in another respect. We possess



no large aggregations of capital and organization like those enjoyed by our friends of the electric light and power industry, in which two or three large manufacturing concerns have been enabled to accumulate great capital resources, and thereby have taken the lead in development of the industry's markets. What manufacturers do in the electric light and power field our operating companies must do for themselves. It goes without saying that in most directions the research is best concentrated in the national association, which can draw information from all sources, is guided by the best thought in all directions, has responsible leadership in its directorate, and is organized to serve all of its members.

Many operating companies have been conducting research of their own for varying periods of time. In some cases they have been obliged to do so when no national agency was undertaking it; in other cases it was for the solution of local problems. When a national association is on the job as in so many industries today, there is a great stimulus of local research. In many instances the general association work can be used as the basis and from this basis developed to any extent desired by local agencies for local or regional purposes. Such has been the case in the gas industry.

Soon there arises a sense of pride of effort and of accomplishment which permeates throughout the industry and its association.

We are all familiar with modern forms of regulation, and, whatever differences of opinion there may be as to its development, it seems certain that, generally speaking, there is no better plan for public connection with a public utility than regulation by bodies operating through process of law. Scientific measurement, and intelligent advance based upon practical application of researches, will be a valuable factor in the future of regulation, and will greatly aid the agencies set up by law. I can illustrate this by refer-



*Research is one contribution of the A. G. A. Testing Laboratory at Cleveland, Ohio*

ence to a statement in a book of wide current distribution, to the effect that the American Gas Association Testing Laboratory located here in Cleveland, Ohio, is the outstanding example of American industry regulating itself in the public interest. The work of that laboratory is largely research, which must necessarily precede the adoption and development of testing requirements. To be a little plainer, the industry which most patiently and skillfully works out its own salvation by ascertainment and application of facts—that is research—will need and receive the least public regulation in the future.

The research work sponsored and supported by the American Gas Association is not confined to its own laboratory or to the laboratories of its members. The best technical and scientific personnel and facilities available are drawn upon wherever they may be found. At the present time the engineering experiment departments of four leading universities have research fellows diligently at work on projects supported by us. In addition, two commercial laboratories and the laboratory of another trade association are also prosecuting work instigated, planned, and supported by the American Gas Association. The facilities of several government agencies such as the U. S. Bureau of Standards and the U. S. Bureau of Mines are also being utilized.

It must be self-evident, too, that the national organization of any industry which plans and executes carefully devised and thoroughly thought out activities in research lines, thereby establishes itself more firmly and securely in the confidence and esteem of its members.

The industry, which demonstrates its faith in its future and its determination to develop its service to its public through research and measurement, attracts to its ranks the best element of younger men, who, as the years go by, will become its leaders, for without this influx of the best blood and thought, no industry can maintain and develop a position of vital

importance in the civilization of our time.

We of the gas industry feel that for every dollar properly spent in research there have been many dollars returned. This return is not limited to the discoveries in the chemists' laboratory but is directly reflected in the quality of service we are rendering to every customer using gas in one or more of the thousands of possible applications. That is the true value of research to a public utility—a contribution toward reaching more customers and giving them a higher degree of satisfactory service—all at the lowest possible cost.



© Airmap Corp. of America

*This interesting air photograph presents the new building and tower of the Consolidated Gas Co. of N. Y. at a unique angle. The building is in the center, at the right*

## Investment Bankers Report on the Industry

In Annual Report of the Public Service Securities Committee  
of the I. B. A., Presented at Atlantic City

By JOHN P. BAER

Chairman, Public Service Securities Committee, Investment Bankers' Association of America

THE two words best descriptive of the gas industry are "stability" and "adaptability." Stability, because the industry through more than a century of life has regularly served its customers. Adaptability, in that it must meet and cope with difficulties as they arise, to surmount them, to plan diligently and intelligently for the future, to seek and perfect new uses for its product, and to prepare for the demands of the years ahead.

Within the span of a single lifetime, the gas industry has witnessed a change from a 90 per cent lighting load to a 92 per cent heating load and during that period and in the face of this complete transformation of utilization of its product, the manufactured gas industry has increased its sales 400 per cent. Although furnishing very limited service so far in rural districts or in small communities, the manufactured and natural gas industry has in the United States fifteen million customers who are using per capita 70 per cent more gas than they used 10 years ago. The annual increase in manufactured gas sales, continuous since 1906, has been steady and regular, the largest percentage of increase occurring in the year when there were the greatest industrial demands on the country because of the war in Europe and the smallest percentage increase in the

THE material presented here is an abstract of the report of the Public Service Securities Committee of the Investment Bankers' Association of America, which was presented by Chairman Baer at the recent Atlantic City convention of the association.

The report is a most comprehensive one, and in addition to the part printed here includes references to the electric light and power, the telephone, and the street railway industries. Comment is also made on the status of the Muscle Shoals Bill and the Swing-Johnson Bill (Boulder Dam). Several paragraphs dealing with the subjects of "Circularization" and the Federal Trade Commission investigation have also been abstracted from the report.

Henry R. Hayes, vice-president of Stone and Webster and Blodgett, was president of the Investment Bankers' Association for the past year and presided at the Atlantic City sessions.—Editor.

year when we were all exhorted and required to use less of everything because "we were at war."

While the statistics of sales of natural gas have not shown such regularity as indicated in the above figures pertaining to manufactured gas, it is known to all that much more natural gas is now being sold than ever before. The extension of natural gas service to many cities in the Southwest has in the past year or so greatly stimulated industrial activity and urban de-

velopment in this section.

During the year 1927, the sales of manufactured gas in the United States were in round figures 475 billion cu.ft. and of natural gas 1 trillion, 248 billion cu.ft., a total of nearly  $1\frac{3}{4}$  trillion cu.ft.

In the industrial world gas is now being applied to more than 21,000 separate uses. Control is again in this field a most important factor and as in house heating, accurate temperature regulation, the abolition of the problems of storage and handling of coal and of the collection and disposal of ashes, play important parts. The industrial load factor is especially important and desirable, the consumption being much more steady throughout the year.

The prospect of the gas industry appears to be the best in its history and that it can confidently look to its future

with assurance of continued growth and usefulness.

Total capitalization of public utilities in this country is estimated to be at least \$18,000,000,000.

The question of furnishing to the buying public complete and adequate information regarding the security offered is one of greatest importance and this committee begs to emphasize the need of betterment in this regard. We find in many cases that adequate information is not given. We cannot condemn too harshly carelessness in the preparation of a circular.

The first duty of an investment banker is the protection of his client. This must take precedence over all other thought and action. The profit to the selling banker and the market position of the security must be subordinated to the one main thought—protection and full value to the customer. Any other thought is contrary to the ethics of our business as well as to the inbred desire we all have to act openly and honestly in this matter. To do aught else would be to stultify both ourselves and our profession. We, therefore, call upon every member of this Association to measure his offerings with the yardstick of frankness and honesty.

We do not believe that these cardinal principles can be attained by a set standard of rules, but we do believe that by education we can, in great measure, overcome the looseness, in some cases, of present circular preparation and to secure, as time goes on, circulars as nearly perfect as mortal agency can make them.

We desire to comment upon the so-called "educational propaganda" situation, as the question is one of great diversity of opinion. The press of the country is divided; a part have endeavored to convey the thought that the utilities "had been engaged in practices which were almost criminal in their tenor"; on the other hand, other press media have taken an entirely opposite idea.

Your committee takes the stand that the industry has nothing to fear from a non-political, fact-finding investigation and approves all educational work whether by way of news articles or by way of paid advertisements, *or by any other fair means, provided the subject matter is presented truthfully and fearlessly.* Your committee feels that the public management can be depended upon to discourage any effort to include in their educational program ambiguous statements or subject matter that may mislead or may convey an incorrect impression. Your committee believes that the utility corporations as a whole are honestly managed, and have been and are one of the forces of primary industry which has made America great, and we feel that if the effort to federalize or nationalize public utilities is successful, then a great calamity will have fallen upon this country.

We now reaffirm the position so often taken by the Investment Bankers' Association of America, in that we are entirely opposed to the entry of the Government into business and we feel that both as to quality and cost of service the people of this nation are better served under private than under public ownership, and we reaffirm our belief in State commission control rather than Federal administration.

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### Baltimore Company Awards Two Scholarships

THE Consolidated Gas, Electric Light and Power Co. of Baltimore, Md., has awarded two scholarships in gas engineering at Johns Hopkins University to Ronald B. Brook and Sydney Levin, both of Baltimore.

The company utilized the regular scholarship competitive examination of the University as the means for selection. These scholarships cover payment by the company of charges for tuition and incidentals for a complete course of 3 or 4 years. The money value of the scholarships is \$450.

Nineteen candidates filed applications and 8 entered the competitive examinations.

## On the Firing Line of A. G. A. Activities

### The Past, Present, and Future of Our Affairs

THE new Association year is well under way. Following a custom of several years standing, on Nov. 20 President Fogg gave the annual President's dinner to the chairmen, vice-chairmen, and secretaries of the various Departments and Sections.

Eighteen were present at this dinner, which was held the evening previous to the first meeting of the Executive Board. All present outlined activities for the coming year.

### Will Hold Conference on Pacific Coast

AT the meeting of the Executive Board, held Nov. 21 at Association Headquarters, it was decided to accept the kind invitation extended by C. H. Dickey, President of the Pacific Coast Gas Association, in behalf of the officers of this Association, to hold an executive conference on the Pacific Coast in February.

The meeting will be held the first week in February, and the following committee on arrangements and program has been appointed by President Fogg:

*Chairman*, Franklin S. Wade, Los Angeles, Calif.; S. W. Meals, Pittsburgh, Pa.; H. Leigh Whitelaw, New York, N. Y.; H. C. Abell, New York, N. Y.; Clifford Johnstone, San Francisco, Calif.; A. B. Day, Los Angeles, Calif.; and K. R. Boyes, New York, N. Y.

### Laboratory Seal Report

THE Report of the Committee on Economic Aspects of the A. G. A. Testing Laboratory Approval Seal was accepted by the Executive Board. This report, in brief, calls for the addition of the following phrase to the present seal: "This Laboratory Approval Seal is a guarantee of compliance with basic national requirements of safety—American Gas Association, Inc."

The complete report of this committee is printed elsewhere in this issue of the MONTHLY, and further details of the matter will be given in the January issue.

### Growing Membership

THE A. G. A. grows and grows. At the meeting of the Executive Board three gas companies, four manufacturer companies, and 121 individuals applied for membership.

### OFFICERS AND BOARD INVITED TO CHICAGO HOLDER DEDICATION

ON behalf of The Peoples Gas Light and Coke Co., of Chicago, Ill., Bernard J. Mullaney, vice-president, has issued a special invitation to the officers of the A. G. A., the Executive Board, and the Headquarters Staff to attend the formal dedication ceremonies of the new 20,000,000 cu.ft. waterless gas holder which the company is to put into service on Dec. 19.

Apart from the circumstances of its size and of its having been constructed in record time, this holder has the added distinction, Mr. Mullaney believes, of being the first noteworthy structure of any kind—and certainly the first among comparable structures—to be painted, lighted and otherwise marked to serve the needs of air navigation according to specifications worked out and officially approved by the aviation authorities in the Department of Commerce at Washington and local aviation authorities and interests.

On this account it is intended that formal introduction of the holder into service shall be a ceremonial event.

### National Advertising Report

THE report of the Committee on National Advertising, presented at the Board meeting by Clifford E. Paige, chairman, was approved. This report is as follows:

"The Committee on National Advertising wishes to amend its report of May 29, 1928, as follows:

"1. The Committee recommends that the regional plan of cooperative advertising as exemplified by the New England experience be approved by the Executive Board as an alternative to any present plan of national advertising.

"2. The Committee suggests that a comprehensive plan be evolved by the Publicity and Advertising Section and offered to regional and sectional organizations.

"3. The Committee volunteers to assist the Section in the preparation of a plan."

### Industrial Advertising Increased

THE appropriation for the trade paper advertising program, now being conducted by the Industrial Gas Section, has been increased from \$35,000 to \$50,000.

This campaign is carried on through the various trade journals of industries which are large



### ATTENTION

**T**HE entire membership is invited to read and to study the Report of the Committee on Coordination of Scientific Research, which appears on page 801.

This issue of the Monthly has been enlarged 16 pages to present this report to the members.

and potentially large users of gas for industrial purposes. Further details of this program, together with a list of the periodicals used, will be published in a future issue of the MONTHLY. John F. Weedon, of Chicago, is chairman of the committee in charge of this program.

The Industrial Gas Section is also conducting an active publicity campaign. J. B. Nealey, of the Headquarters Staff, devotes full time to the preparation of technical and semi-technical articles for the trade press. The results secured to date have been very satisfactory, according to H. O. Andrew, of New York, chairman of the Section's Publicity Committee.

### House Cooling and Pipe Research

**I**NDICATIVE of the intensive interest being shown by the entire gas industry in the general theme of research is the announcement that the Executive Board has approved the expenditure of additional funds for the successful prosecution of several more projects of real value to the industry.

The American Gas Association will take a part, together with several other organizations, in the establishment of a complete library devoted to the sciences of heating and ventilating. Other groups in this development are the American Society of Heating and Ventilating Engineers, the National Heating and Piping Contractors Association, and the U. S. Bureau of Mines. It is proposed to establish in Pittsburgh, Pa., the most complete library of all contributions to the science of heating and ventilating.

The Executive Board has also approved three other research programs, covering the subjects of pipe joints, pipe coverings, and house cooling. In addition provision has been made for a fund for engineering research at universities and colleges that have conducted gas courses or gas research in the past.

The house cooling, pipe joint, and pipe covering research are all of vital interest to the industry. Leakage losses and corrosion expense are costly to gas utilities, and the prosecution of research along such lines is a most practical step. The house cooling program is also of paramount interest.

### Finance Committee Selected

**T**HE following members of the Finance Committee were elected by the Executive Board at the November meeting:

Chairman, J. S. DeHart, Jr., Newark, N. J.; J. D. Creveling, New York, N. Y.; H. E. McGowan, Brooklyn, N. Y.; R. R. Young, Newark, N. J.; and W. J. Welsh, Stapleton, Staten Island, N. Y.

The Board expressed regret that this committee would lose the valuable services of James Lawrence, who has served as chairman for the past few years. Mr. Lawrence resigned because his offices are being moved from New York to Chicago.

### Eastern States Gas Conference

**A**FUND of \$380.21 has been turned over to the A. G. A. by the Eastern States Gas Conference. H. H. Newman, the last President of the Conference, made the formal offer to the Association.

### General Committee Chairmen

**T**HE work of the General Committees of the A. G. A. has long been considered valuable by the entire membership. The new chairmen of these committees have been appointed, and it is apparent that the splendid work done in the past will be continued as the new chairmen are

(Continued on page 812)



"Worm's eye" view of new waterless gas holder of the Public Service Co. of Northern Illinois, at Maywood



## The New Competition—How to Meet It

### A Comprehensive and Inclusive Summary of the Merchandising Future of the Gas Industry

By HERBERT B. DORAU

Assistant Professor of Economics, Northwestern University School of Commerce: Research  
Associate, The Institute for Research in Land Economics and Public Utilities

IN this very dynamic economic society of our times, to stand still is to fall behind. Furthermore, with the ever increasing rate of progress, or at least change, to move ahead slowly is to lose out relatively in the intense and all-pervasive competition which all who now engage in business must accept as an everyday fact.

Rightly or wrongly, an industry which does not or can not march to the new tempo of progress is judged to be out, or on the way out. The psychological effects of such an attitude of mind within or toward an industry are important and become a distinct handicap to an industry even if only temporarily affecting its growth and development. The investor, most sensitive of classes, displays some hesitancy about lending his capital, and the cost of money to the industry rises and its difficulties increase; the industry becomes less attractive to the most energetic and intelligent men, and the effect of this soon shows itself in lessened efficiency, even stagnation of the managerial and labor factors, and, finally, but not necessarily the last to react, there is the potential or even present customer for the product who, in the doubt as to the future of the service or product, turns to alternatives.

In a small way business and industry have begun to apply to the control of their future the knowledge and human intelligence so tediously acquired. The rise of new industries, the rapid expansion of others, means the relative or absolute decline of others but which shall rise and which shall decline is not determined or dictated by any inexorable law of nature. The capacity and will-

ingness constantly to readjust is the basic requisite of life and progress. Similarly the industries which can meet changed social, economic and political conditions quickly and effectively will persist; others will be superseded and scrapped.

The gas industry has had its ups and downs; it has faltered and recovered. It has in the past displayed the capacity to readjust itself to changed circumstances and to come forth stronger than before. It is moreover today in the strongest position ever held.

The changed conditions of recent times have brought to our attention new tendencies, some of which certainly are to be viewed with alarm. The new turn which competition has taken in the last few years is important among these new factors which the industry must recognize. Because of the wide difference between the old competition of the economist and this new manifestation of business energy, we are justified in referring to it as the *new competition*.

It is no longer news that competition has taken a new form and is making itself felt in a new and unusual manner, but the problems raised by these new circumstances are new and difficult ones for which solutions must be found.

This new competition is not something peculiarly attendant upon the gas industry, rather observation will show that it represents an almost universal realignment of business forces. This new competition is not private, individual or particular, rather it is social in that it may be described as *competition of everyone with everyone else*. The gas industry as an intimately integrated element in our complex economic order could not hope to avoid the influence and effects of this intense conflict. It is in fact be-

Address presented at General Sessions of A. G. A. convention, Atlantic City, N. J., Oct., 1928.

coming very conscious of its changed status and rousing itself to inquire what can be done to meet the same old threat in this new and disguised form.

The new competition is but the old business force raised to a higher and more intense plane of effectiveness. As soon as common interests in any group outgrew the important differences among the units constituting such a group, they combined for more effective action against a common antagonist. Should others then not do likewise and combine in defense of common interests, they could not hope long to maintain the previous balance.

The new competition finally and ultimately resolves itself into an intense battle for the maximum obtainable share of the consumer's purchasing power, and not satisfied with the results of the struggle even on this plane, it now even becomes necessary to attach part of the customer's *future* purchasing power by the extended payment plan if one is to get a share at all. Those who assume to wait until the customer has saved and expect him to spend what he has accumulated will rarely make large sales. The dictate of the new competition seems to be clearly that the customer's purchasing power must be anticipated and tied up before he has his income in hand. Thus has all business become a competition of all other business, and the gas industry has not been exempt from the effects; in fact from an economic standpoint its status has been most distinctly changed.

While competition was on the simple plane of the competition of like and like, it was proper to refer to the gas business as a monopoly, but now like all other things gas is in more or less direct competition with everything that is sold. This situation, so upsetting to many industries, after all should not be so new to the gas utility for during almost its entire history it has battled at least one formidable substitute either offensively or defensively.

It may be pointed out that it has always been during periods of competition that the gas industry has made its most rapid strides.

In this new competition the gas industry has some advantages and some disadvantages; it may be well to analyze these peculiar circumstances of the industry, both favorable and unfavorable.

Examining first the commodity offered for sale, gas is found to be a commodity of a single use and thus cannot be sold in advance of the customer's need nor in quantities. Its sale is therefore not easily adapted to pledging the customer to its future use. But very fortunately a gas connection and gas appliance offer a long series of uses and thus can be utilized as an efficient means for maintaining the demand for gas against all these threats of direct and indirect competition. The ownership of an economical, convenient, good-looking gas range of such substantial construction that it will give satisfaction over a long period of time is a bond of the most effective sort, guaranteeing the use of gas by maintaining a demand for it. The purchase of a quality gas appliance is a down payment on the use of gas for a period proportionate to the useful, satisfactory life of the appliance, and the quality of the appliance is of particular import in retaining customers as good and profitable customers. The number of domestic gas customers has increased satisfactorily. With extension of service to smaller communities and interconnection of near-by places the number of customers may be expected to increase markedly during the next few years, but that is not the problem of the industry as it now exists. The largest efforts are now needed to make the average customer a better customer and to anticipate and prevent if possible the deterioration of customers subjected to the forces of the new competition.

There are no cure-alls or patent remedies for meeting the rapidly changing business problems of the industry. Do-



*The great American public holds the purse strings of the Nation's wealth, and industries fight industries for a share of the dollar*

ing business in a highly dynamic and competitive society brings on chronic conditions which from time to time due to indifference and lack of attention become acute in character. There are no formulae, no potent procedures for all times, places and conditions. Only business alertness which comes from continuous study of an ever-changing complex of factors and forces is sufficient.

We have no nostrum to offer and expect no miraculous adjustments which will free the gas industry from the disturbing circumstances of a highly intensified competition. The new competition is here to stay. It is not merely a passing orgy of merchandising. The new competition can only be met by starting an offensive along the entire line of resistance based on a careful analysis of the more remote causes as well as the immediate and more obvious factors of which all are more generally aware.

The first and most obvious fact is that with the development of generalized competitive pressure, the gas industry is no longer a monopoly. The laundry, public eating place, and prepared food industries are competitors of the most dangerous sort for they have no regard for commission pronouncements and to them a certificate of convenience and necessity, giving control of the market, is just a scrap of paper. The quietude of a controlled market is gone. In theory a monopoly, in fact competitive, the gas industry must take up the weapons of competitive conflict. Unlearned and un-

tutored as it may be in the ways of this conflict, yet to survive, the practices and policies of business born and reared in a system which does not ask by-your-leave, must be adopted. In a competitive system one must compete.

When it is once fully recognized that from now on the gas industry must organize for a competitive struggle, the necessity of studying and adapting the methods and policies of competitive industry will become obvious. The one thing that stands out immediately is the fact that as competition becomes keener the emphasis placed on the merchandising aspects of an industry becomes greater, and this is only natural, for the new competition is in selling and not in manufacturing. The gas industry may then take it from the experience of other industries that in proportion as it meets competition it must have recourse to those methods of marketing, advertising, and selling which others have found successful.

This involves in the first place the recognition of the high positions which the sales department and its personnel must be given. In competitive business the greatest reward goes to those who get the business because getting the business and not making the product is the limiting factor, and this was never more obvious than today when productive capacity in all industry is at a discount and sales results are at such a tremendous premium. The gas industry must of necessity follow by more carefully selecting

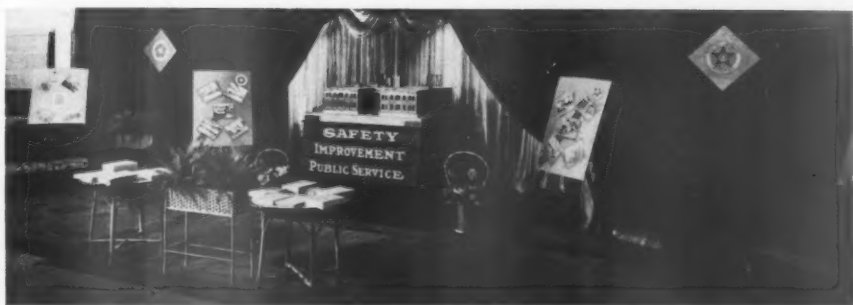
its merchandising staff and compensating them in manner and amount according to the importance of their business function. Too frequently the compensation scheme induces an indifferent sales attitude when compensation can and should be made the device by which sales persons can be distinctly stimulated into becoming *competitively minded*. Important as finance, accounting, budgets, and public relations are, they must be considered secondary to production and merchandising, and selling today is the more important of these two. Under conditions such as the gas industry is now meeting there is every reason why the executive in charge of sales should be the strongest man in the business cabinet and be materially freed from the restraints which those in other departments of the industry too often seem to have the power to exercise. It is the merchandising manager's responsibility to lead his industry against the new competition.

It may be stated that as a whole the gas industry is technically rather than sales minded. While this condition is explainable, yet it must be changed if today's problem is to be met.

Very few out of the many gas companies which may be said to have approached the practical limits of economical gas manufacture can be said to have approached economic limits in its merchandising program. Large scale and large volume production have come to mean lower costs but all these only assume a business significance if larger sales are secured at the same time. Better load factor and large scale production are assumed in rather a matter of fact fashion to be able to perform business miracles, and they can be easily achieved by properly arranging the manufacturing process. But to make these conditions economically significant, it is necessary to "intensify" and "extensify" the market demand, i.e., make old customers better customers and secure new and different classes of customers.

It has been long recognized in principle that the gas industry, like many other industries with a large amount of fixed capital, is an industry of increasing cost and increasing return. The corollary of this fact, namely that added business is more profitable at the same rates and even at lower rates, is not so clearly recognized. The merchandising implication of all this is that since the added business is so largely the more profitable business, it pays to spend more to get it. Even when the added business must be taken at concessionary rates added business can be made to contribute much above the costs for which it is *additionally responsible*. The same proposition maintains even more with respect to additional business from present customers than with respect to new customers and new uses of gas.

But to develop the market for gas intensively is not the same simple problem under the new competition just described, as to develop a load when the industry had more control over its market. It costs money, time, and effort to enlarge the market for a service under conditions of monopoly, but it will cost far more to increase the demand under the present intensively competitive conditions, to which fact the advertising and sales budgets of many competitive businesses will offer supporting testimony. It will along certain lines cost money and real effort even to maintain the demand. The gas industry, therefore, can here and now resign itself to spending materially larger sums on the promotion and development of its business. It is safe to say that companies in growing communities will soon find it economical and necessary to spend much more for this purpose than heretofore. Important among the purposes for which such sum should be spent are extensive advertising so that the customer may be informed about *gas* and *economy in its use*. The public is not *gas conscious* the way in which it is electricity conscious. Here would seem to be a long overlooked opportunity for an intensive cooperative advertising program. Such a program



*The work of the A. G. A. Testing Laboratory will help in the fight of gas versus the radio and the automobile*

should also emphasize the economy, convenience and satisfaction of using quality gas appliances. For a customer equipped with a satisfactory appliance with a long useful life ahead is not one about whom the utility need be much concerned. It is the time of important replacements, when every economical person considers alternatives seriously, that is the critical time for the gas merchandiser. Logically, money spent in developing a market for gas must be followed by money spent to keep the customers and the business gained, or it is not money well spent. Among other things this means keeping the customers sold with satisfactory and economical service.

Neither need there be any serious question as to the propriety and economy of spending for developmental and promotional work an increasing proportion of the revenue received from the customers, *for both the customers and the utility have an interest in developing the market intensively and extensively*, at least to the point where the maximum economy can be obtained in the use of the utilities' fixed investment. It is the "intensity" and "extensivity" of the present market demand that makes it possible to serve at the prevailing rates. It is the duty of management to so expand the market that it can render service at the lowest possible price.

However, the manner and method of achieving this aim are not simple and

lead the discussion into many and diverse aspects of gas industry economics. Effective and scientific merchandising is in the first place a problem of properly pricing the product to be sold. In the gas industry we recognize this as the rate problem and now particularly the problem of differential or class rates. The second requisite, and one of outstanding importance in an industry which renders a service rather than sells a commodity, is the maintenance of the quality of the product. In other industries as well as in public service industries it has been recognized that the dealer must see his product through until the customer is satisfied and more than that see that he remains satisfied.

The importance of the quality of the product in merchandising can not be overlooked. To render an adequate service is one of the traditional and legal obligations of a public utility. The utility must please where it has proposed to serve. In this way it is different from many industries and its merchandising policy must be adjusted accordingly.

The gas appliance comes between gas and the service the customer desires. Appliance merchandising policies then must be recognized as a further important consideration in a program of effective gas merchandising.

Appliance merchandising policies, it may be noted here, are not only important on their own account but vitally affect the



success with which the other requisites are satisfied. When the full possibilities of appliance merchandising have been exploited, the rate problem will be found easier to solve, the service problem of the operating division will be simpler to cope with, and, if quality appliances have been given the lead, it will provide the greatest requisite of all merchandising, namely satisfaction in the use of the product. In order to do this the appliance must qualify as to: (1) economy, (2) convenience, and (3) appearance.

Correct pricing of goods or services is one of the most technical and difficult as well as least understood of all the business functions of the gas industry.

The price of the product is always an important factor among the causes of sales resistance, but in the case of the gas industry it can hardly be said that the price of gas on the average is high. When related to the general level of prices, the price of gas to the consumer is materially lower than it was ten years ago. As a

general rule, it is the way in which gas is priced that is to be criticized.

The gas industry is our second oldest utility industry and so has had time to accumulate a heritage of ideas about rates which it seems very difficult indeed to modify. The metered flat rate established with enthusiasm after the invention of the meter holds ground today in many places, only slightly modified. Block, and step rates appear on the schedules of many companies, but when analyzed these are often such only in form, having in reality few of the qualities of business-getting rates, and thus they do not perform the function of competitive pricing, and now more recently the development of rate regulation and the necessity for some differentiation among classes of customers have made popular what is known as cost-allocation for the determination of the so-called scientific rate.

The continual emphasis on "the cost of the service" in public utility rate-making developed from the now generally

(Continued on page 785)

### Cincinnati Bakes With Gas



During 1927 the 301 restaurants and 205 bakeries of Cincinnati, Ohio, used respectively 393,194,000 and 357,248,000 cu. ft. of gas—96.7 per cent of the baking and 98.5 per cent of the heat requirements of restaurants are cared for by gas





Advertisement 1



Advertisement 2

## Humor Sells Gas Refrigerators

Series of Advertisements in the *New Yorker*  
Is Prepared for that Type of Magazine

THE gas refrigerator has made its debut in the *New Yorker*, New York City's humorous magazine in a series of advertisements which has aroused great interest in the advertising profession and also in the gas industry. The advertisements, published by Servel

Sales, Inc., are outstanding examples of the present day tendency to use advertising copy which will appeal particularly to the class of readers to which the magazine caters. The *New Yorker* is a humorous magazine and the advertisements of the gas refrigerator are in reality an extension of the editorial content of the paper to the advertising columns.

The series consists of "Complaints . . . from letters in our files." Illustrations of the advertisements are shown on these pages.

The first advertisement in the series is headed, "What good is an Electrolux if it won't annoy the neighbors." The



Advertisement 3

style followed is that of a letter from a user, the letter in the first advertisement being:

"Dear Sirs:

"... I wish I had my old-fashioned mechanical refrigerator back again. When Schimmel on the top floor kept everybody awake by playing his radio until 1 A.M., I used to fix him. I'd

just open the door of my refrigerator until the temperature rose and the machinery started up, and then I'd sit back and chuckle over the squeals and howls of interference that came from his radio.

"When the Davises beneath me gave a party that lasted until all hours, I didn't have to knock on the floor. I just started up old trusty, and the chandeliers below shook so much that the guests soon left. I tell you that old refrigerator was a help.

"But this Electrolux—it may cost little to run and all that, but it interferes with a radio about as much as the kitchen sink. There's not enough noise or vibration to it to tip over a dime standing on edge. Who the dickens wants an automatic refrigerator that hasn't any more machinery than a vacuum bottle?"

*Advertisement 4*

All of the advertisements close with a brief description of the advantages of the gas refrigerator. The style is in keeping with the text of the entire advertisement.

The second advertisement is headed "We were so happy until our Electrolux came." The letter is as follows:

"Please advise me, for my life's happiness is at stake. We have been married three years and lived contentedly in our little Amsterdam Avenue apartment until recently.

"Everything that my wife desires I have given her—radio, phonograph, player piano, vacuum cleaner, washing machine. No other family on the court is so well equipped. And it's been a great source of pride to my wife to meet her neighbors in the hall and have them say, 'I listened to your player piano last night, Mrs. Finnegan. Is it new?' Or, 'Is that one of those Orthophonics I heard in your apartment the other evening?'

"I thought she'd be especially pleased with the Electrolux. I had it set up one Saturday while my wife was out. When she came home and saw it she threw her arms around my neck and kissed me. 'You darling! But why isn't it running, dear?' I told her that it was running. 'What!' she said, 'Why it can't be! Where's the noise?'

"When I told her there was no noise, that the Electrolux never made any noise because it had no machinery, her face fell. 'But how is anyone ever going to know we own one?'

"That was six months ago. And that was when my troubles began. My wife was right. Not a soul in our building has asked about the Electrolux. Not a soul knows or at least believes we own anything but a plain ordinary icebox.

"Mrs. Murphy and Mrs. O'Rourke have both bought refrigerators since then—the kind that leaves not the slightest doubt that they own them. They pass my wife in the hall with their nose in the air. My happiness is

gone. Each day my wife's disposition is changing for the worse. What can I do?"

Advertisement number 3 is captioned, "I can't stand my husband's snoring since we bought an Electrolux." The letter in this advertisement is:

"Can't you do something to make our Electrolux just a little noisy? I can't sleep at night with everything in the apartment so terribly quiet—everything, that is, except my husband.

"He snores.

"When we used to own one of the old-fashioned mechanical refrigerators with things inside that rattled, I never minded his snoring. In fact, I couldn't hear it because the sound blended perfectly with the noise of the icebox machinery. I know the Electrolux has no machinery, but isn't there something I can do? I haven't slept soundly in weeks and I'm growing desperate."

This advertisement continues as follows:

"Wives, you'll like the Electrolux, unless perhaps you have a snoring problem too. It gives you plenty of big pure ice cubes, an evenly low food temperature at all times. Yet its operating cost is ridiculously low—less per month than that of any other refrigeration system." Etc.

Advertisement number 4 is headed, "What . . . no moving parts?" my little son screamed. "There goes my career!" The letter is as follows:

"I am afraid you will have to take back your Electrolux. The trouble is my little son and his mechanical turn of mind. His mother has him cut out for an engineer.

"We used to own one of those old-fashioned mechanical refrigerators that made a lot of noise and contained all kinds of machinery.

*Advertisement 5*

I never understood this machinery very well but my little son took to it like a duck to water. He was always tinkering among the dirty parts, never happier than when taking them out and putting them back again. Sometimes there were a few parts left over, and the food spoiled. But my little son remained happy.

"Then one day I bought an Electrolux, little dreaming what I was letting myself in for. When the Electrolux arrived and my son saw that it had no more machinery than a vacuum bottle, he flopped on the floor, kicked his heels and screamed. Since then we have bought him an Erecto set, we have installed a complete machine shop in the basement, we have tried everything. But it's no use. He takes no interest in anything. He cannot eat or sleep; he is losing weight—and his temper is so bad we can't do a thing with him any more.

"Do you think it would be possible to install a set of dummy machinery on the Electrolux, exactly like that which he used to play with?"

Advertisement number 5 is headed, "Now that I own an Electrolux, I'm broke all the time." The letter is as follows:

"I certainly was a sucker the day I decided to save money by letting my wife buy an Electrolux. She's the only one who's saved anything.

"One pair of shoes used to last her a whole year. A hat was good for two or three seasons. After I got done paying my ice bill each month it just seemed there never was any money left for such things.

"Well, a man never knows when he's well off. The minute our refrigerator expense went down to almost nothing, my wife's bills for clothes mounted higher than the Woolworth Building. And when I say anything about it, she replies: 'Extravagant? Why, dear, we (note the we) can afford these things now. Think how much money the Electrolux is saving us.'"

The sixth advertisement of the series is headed, "Now that the repair man never comes, our cook threatens to leave." The letter in this advertisement strikes at the heart of the servant problem:

"I'm afraid we've got to give up either our cook or our Electrolux.

"The trouble all started when we owned one of those old-fashioned mechanical refrigerators with a lot of machinery inside it. Something always was wrong. The repair



*Advertisement 6*

man was a steady caller. A big, blond, handsome brute—our cook fell hard for him. No wonder the trouble always took hours to fix.

"Then we bought an Electrolux. And now the repair man never comes any more. He says this refrigerator never will need fixing because it has no machinery.

"When the cook heard this she burst into tears. She's been growing more and more restless every day, and I fear we can't keep her much longer. Isn't there something we can do, some little trouble we can stir up, to bring the repair man back again and keep our cook happy?"

### **New Cotton Fabric Booklet Is Available**

A NEW booklet, entitled, "Cotton Fabrics and Their Uses," has been issued by the New Uses Section, Textile Division, Bureau of Foreign and Domestic Commerce, Washington, D. C. Copies may be had gratis from the Section.

### **Kings County Company Adopts Stub Plan**

THE Kings County Lighting Co., Brooklyn, N. Y., has adopted the stub system of accounting, according to an announcement made by J. H. Ahrens, the company's chief clerk of accounts receivable bureau.



F. J. McKenna



A. L. Krause

McKenna and Krause were awarded McCarter Medals at the A. G. A. convention. They are employees of The Equitable Gas Co., Pittsburgh, Pa.

### Hayes Refers to Utilities in I. B. A. Address



© Blank-Stoller  
H. R. Hayes

**HENRY R. HAYES**, president of the Investment Bankers' Association of America, spoke as follows concerning public utilities in his presidential address at the annual convention of the Association at Atlantic City, N. J., recently:

"Early in this administrative year I had occasion to state to the Committee on Interstate Commerce of the United States Senate the views of this Association, with special reference to the resolution for an investigation of public utility business. Primarily we were solicitous of having a clear fact-finding investigation of the industry as a whole and not one confined to a few specific phases of the business.

"We believe in the fundamental soundness of the theory of state regulation which has been such an important factor in its development and rapid growth. In many ways there is an attack directed against that form of regulation. The Association has repeatedly urged broad and more uniform state regulatory laws, liberally supported by legislatures. If there has been ineffectiveness in state regulation, it is due primarily to the inadequate powers vested in the commissioners and the inadequate appropriations voted by the legislatures. The Commissioners on Uniform State Laws this summer approved of a uniform state public utility commission law. That was carefully studied for several years by this Association and in its present form meets with its approval. Let us actively urge its adoption.

"It is trite to point out to you that the in-

dustry has never enjoyed better credit and that state regulation has been an important factor in bringing the public utilities to this happy condition. We are ready, therefore, to oppose all efforts to break down statewide regulation of the business and defend all sound financial operations for which we have been responsible. All this we shall do with no decrease in the exercise of our independence of judgment. In the past we have not hesitated as an organization to differ with management, public authorities, and others. There is no reason to change that policy."

### What's In a Name?

**ONE** of the A. G. A. company members, a prominent manufacturer of gas plant maintenance materials, offers a reward for a suitable trade name for a refractory cement which has been used for many years by the gas industry. This cement is plastic and especially adaptable to the hot patching of re-ports, also cold patching, and laying refractory brick by the "rubbed joint" method.

If readers have any suggestions along this line, kindly address "Contest Editor," American Gas Association, 420 Lexington Ave., New York, N. Y.

### Philadelphia Suburban Men Honored



Mr. Coscia



Mr. Pecarillo

**A**T suitable exercises held on Oct. 23, four employees of the Schuylkill division of the Philadelphia Suburban-Counties Gas and Electric Co., were honored for saving human life. One of the employees received the McCarter Medal for saving life from asphyxiation, the second employee received the McCarter Certificate, and the other two received the Insull Medal for saving life from electric shock.

Gabrielle Pecarillo, of Norristown, Pa., was the recipient of the McCarter medal, and Giuseppe Coscia of the certificate.

The McCarter Medal and Certificate are awarded by the American Gas Association for saving human life from gas asphyxiation by the application of the prone pressure method.

## Affiliated Association Activities

### New England Gas Association

THE period between the annual convention of the American Gas Association in October and that of the New England Gas Association in February is, as usual, a quiet one as far as annual gatherings of gas associations are concerned.

The New England Gas Association opens the 1929 season with its annual convention to be held at the Hotel Statler, Boston, Mass., February 6 and 7. Details of the program will be announced in later issues.

### Canadian Gas Association

THE city of Ottawa, Ontario, has been selected as the place for the 1929 annual convention of the Canadian Gas Association, with June 13 and 14 as the dates.

### Pennsylvania Gas Association

WHILE no details of the program for the mid-year meeting of the Pennsylvania Gas Association, to be held in Harrisburg, Pa., on Tuesday, December 11, can be announced at the time this issue of the MONTHLY goes to press, the plans indicate an unusually interesting meeting deserving good attendance.

Past-President John A. Weiser is chairman of the committee on arrangements.

### Pennsylvania Natural Gas Men's Association

THE program of the October 17 meeting of this Association consisted of reports and discussions on the convention of the American Gas Association. The secretary, E. J. Stephany, reports the meeting was a real success and of considerable value to the members. There were nine reports submitted, all of which differed widely, describing different phases of the convention. The discussion extended throughout the time available and never lagged. This is an idea which other gas associations might consider for one of their meetings.

The following have been appointed by President George W. Ratcliffe to represent the Pennsylvania Natural Gas Men's Association on the A. G. A. sectional managing committees: Accounting, A. J. Newman; Commercial, P. L. Mulkin; Industrial Gas, E. F. Koch; Publicity and Advertising, H. A. Gager; and Technical, Frank Batt.

### Michigan Gas Association

SECRETARY A. G. Schroeder has advised that the 1929 convention of the Michigan Gas Association will be held on Mackinac Island, Mich., July 1, 2 and 3.

## Graf Zeppelin Goes Home

(Continued from page 742)

base of the column to furnish the heat required in the reboiler. The gas then passed through heat interchangers, cooled by waste gas from the column, and then into the central part of the bubble tray section of the column. The gas entered the feed inlet of the column at a temperature of approximately zero degrees Fahrenheit and as a mixture of liquid and vapor. Within the bubble section of the column, the liquid, consisting of propane and butane, descended through the bubble trays and accumulated in the reboiler, while ethane and methane ascended the column and partially condensed in the reflux condenser. Very low temperatures of approximately minus 40° F. were maintained in the reflux condenser by expanding ethane from 200 pounds to 15 pounds gage in the lower section and methane from 200

pounds to 10 pounds in the upper section. The gas, consisting principally of ethane and designated as "Kenogen," was removed from the column from the expansion chamber of the lower section of the reflux condenser and compressed.

The compression was done in a four stage compressor which boosted the pressure from 15 to 2,000 pounds, the pressure required for loading the cylinders. The cylinders used for gas containers were high-pressure hydrogen cylinders of approximately 2.5 cu.ft. capacity. They were furnished by the Navy Department. Under 2,000 pounds pressure the gas was liquefied and the contents of each cylinder was equivalent to approximately 340 cu.ft. of gas. A total of 2,700 of these cylinders were filled and loaded into cars for shipment to Lakehurst to complete the order in record time.

A constant check on the specific gravity of the Kenogen assured a uniformly con-



stant quality of product. Since the isolation of pure ethane was impossible by the use of a single column, small quantities of methane or propane were added as needed to keep the gravity of the gas a constant value.

Among the notable improvements in the design and operation of the Graf Zeppelin over previously built airships and directly attributable to the use of gaseous fuel instead of liquid fuel are:

The buoyancy of the ship is not affected by the addition or consumption of fuel.

Since the fuel gas has practically the same specific gravity as air, the addition of gas when the ship was refueled did not increase the load nor the consumption of fuel decrease its load. Since the fuel load was uniform, the shifting of ballast, when the fuel was loaded or consumed, was eliminated. Another feature was the elimination of condensing equipment sometimes used to condense the moisture contained in the exhaust gases and add the water load to the ship to compensate for the weight of the liquid fuel consumed.

Large fuel supply—The use of gaseous fuel instead of liquid permits a larger quantity to be carried, due to the light weight of containers for holding the fuel, the increased capacity for the gas, and the low specific gravity of the gas itself.

Elimination of great stresses set up in the structural members when the ship is carrying concentrated liquid fuel loads.

Increase in the efficiency of combustion and the decrease of fire hazard.

### Purdue University

(Continued from page 744)

gas company will provide additional men to adjust quickly all customers' appliances so that service shall not suffer.

Besides these pieces of work which have been mentioned, the Gas Engineering Department, through its analytical laboratory (shown in one of the accompanying photographs) is cooperating with the School of Home Economics at Purdue in a thorough test of fuels for use

in Indiana kitchens. The department also is cooperating with the metallurgical department in various research problems and already it has taken its place as an active section of the School of Chemical Engineering at Purdue.

In addition to these projects which are underway and others that have been proposed, two new courses in gas engineering have been started this year by Prof. Leckie, which he personally is teaching. The first of these has to do with production of gas and its by-products. This course covers coal carbonization in retorts and ovens and subsequent treatment of the gas evolved, carburetted water gas production and treatment, and recovery of by-products. The other course takes up distribution systems for manufactured and natural gas, and the uses of gas, both industrial and domestic. Sixteen engineering students already have elected gas engineering as their major subject. Eight of the young men worked during the past summer vacation in gas plants of Indiana to gain experience.

These courses are in addition to those formerly given in gas and fuel analysis and such work as comes under a general chemical engineering course.

In addition, Professor Leckie is available for addresses.



*Republicans and Democrats agree that the "plank" of this window display is adequate. The Providence Gas Co. reports that the display created great interest*



**NATURAL GAS DEPARTMENT**

S. W. MEALS, Chairman

H. C. MORRIS, Vice-Chairman

E. J. STEPHANY, Secretary

## E. J. Stephany is Appointed Secretary of Natural Gas Department

### Pittsburgher Has Had Extensive Experience in Industry

*E. J. Stephany*

**T**HE appointment of E. J. Stephany, of Pittsburgh, Pa., as secretary of the Natural Gas Department of the American Gas Association, has been announced by Oscar H. Fogg, president of the A. G. A.

At the time of his selection, Mr. Stephany was assistant to the manager of sales and service of the Philadelphia Company. He has been with the Philadelphia Company or its subsidiary, The Equitable Gas Company, for 10 years. Mr. Stephany is also secretary of the Pennsylvania Natural Gas Men's Association, an affiliated organization of the American Gas Association.

The appointment of Mr. Stephany will be welcomed by all branches of the natural gas industry in North America, Col. Fogg stated in making the announcement.

"Mr. Stephany brings to this important position a particularly broad experience in the gas industry," Col. Fogg said. "He has served in various capacities for several companies for approximately 15 years, his work during this period covering all departments of the gas company. In addition he has given loyal service to the A. G. A., and his committee work has not only been valuable and appreciated, but it has also given him an accurate picture of the organized gas industry.

"I am particularly gratified to know that Mr. Stephany will fill this position. With him as secretary, we can expect to realize the full benefits of the amalga-

tion of the American Gas Association with the Natural Gas Association of America. Already we have seen some of these benefits, and I am confident that the future will bring even more, to the mutual benefit of the manufactured and natural gas branches of this great industry."

Samuel W. Meals, chairman of the Natural Gas Department, said that the appointment of Mr. Stephany would meet the approval of all members of the Department.

"The new secretary has had a well-rounded experience in the natural gas industry, and he has a large circle of friends in natural gas territories," Mr. Meals said. "As chairman of the Department, I take great pride in presenting Mr. Stephany to the members. I ask that close cooperation be given him, Major Forward, and Col. Fogg, for it is my firm conviction that we will see even more benefits of the recent amalgamation than we have. Today we can place our fingers on certain benefits of the merger of the two associations, and this should stimulate us to still further accomplishment, for it has already been proved that benefits accrue to the manufactured and natural gas branches alike.

"On behalf of the members of the Department I would like to express my appreciation of the work of Thomas Scofield, who has served as acting secretary for the past several months."

Alexander Forward, managing director of the A. G. A., said it was a pleasure to welcome Mr. Stephany to the staff of the A. G. A.

"The new secretary has given active

service to the A. G. A., his record including membership on important committees of the Commercial, Industrial Gas, and Publicity and Advertising Sections," Major Forward said. "He was vice-chairman of the Industrial Gas Section when that Section was organized several years ago, and since the formation of the A. G. A. has served on at least two important committees every year. During the past year he was chairman of the Space Heater Approval Requirements Committee, chairman of the Commercial Section's Domestic Cooking Committee, a member of the Commercial Section's Merchandising Committee, and also of

the Industrial Gas Section's Rate Committee."

Mr. Stephany is 36 years old. He is a graduate of the University of Wisconsin, Mechanical Engineering, 1913.

Late in 1917 Mr. Stephany was commercial manager at Aurora, Ill., and in 1918 went with The Equitable Gas Company, Pittsburgh, Pa., as industrial gas engineer. He organized and headed the sales department of The Equitable. For the past two years he has been assistant to the manager of sales and service of the Philadelphia Company, the parent company of The Equitable Gas Company.

## Southwest Division Meets at Shreveport January 14-15

THE annual meeting of the Southwest Division of the Natural Gas Department, A. G. A., will be held at Shreveport, La., January 14 and 15, according to an announcement made by W. C. Grant, secretary of the Division.

A large attendance of gas men from the southwestern section of the United States is expected. Already there are indications that the states of Louisiana, Texas, Arkansas, Oklahoma, and New Mexico will be well-represented, and there will be keen rivalry among the states to see which will have the largest number of delegates present.

Elmer E. Schmidt, Lone Star Gas Co., Dallas, Texas, is chairman of the Committee on Papers. This committee is arranging for many valuable presentations. The "Question Box" method will again be followed, and it is anticipated that material of great value will be brought out.

N. C. McGowen, of Shreveport, La., is chairman of the committee on arrange-



N. C. McGowen



H. C. Morris

ments for the meeting. Mr. McGowen is a past chairman of the Natural Gas Department of the A. G. A., and is at present a member of the Department's Advisory Committee.

Henry C. Morris, President of the Dallas Gas Co., and vice-chairman of the Natural Gas Department, will preside at the sessions. He will be assisted by Mr. Grant.

The tentative program consists of papers on open flow by pressure methods, proper casing of wells, the ideal distribution system for small communities, the proper classification of accounts, gas company advertising, etc. A feature of the meeting will be free discussion of the tremendous gas developments made in the Southwest during the past few years.

All natural gas men of the Southwest are urged to attend. Further details will be given in the January issue of the MONTHLY, and the December issue of *Natural Gas*.

## Natural Gas Developments of Interest to the Investor

By JUDGE H. O. CASTER

Henry L. Doherty & Co., New York, N. Y.

UP until two or three years ago, the natural gas industry was knocking at the doors of the financial institutions of this country, begging for a hearing.

In 1924 there was practically no financing of natural gas companies in the United States; in 1925, there was about \$5,000,000; in 1926, \$45,000,000; in 1927, \$86,000,000—and at the end of 1928 we will be fully up to that amount.

Ninety-five per cent of the natural gas that is produced and consumed in the world is produced and consumed in the United States. It is estimated that about \$1,750,000,000 is invested in this industry, that there are about 75,000 miles of natural gas pipe line, 30,000 of which is comprised in the various distributing companies, and 45,000 miles of transportation pipe line.

During 1926 there were produced and distributed in this country approximately 1,312,300,000,000 cu.ft. of natural gas.

The particular happening which has brought about such an activity in the natural gas business has been the discovery of and the proving up of the large area of the Panhandle Texas Field. This field is approximately 125 miles in length, with an average of 16 or 18 miles in width. How much natural gas it is capable of producing, no one can tell. Whether it is a single field or a series of pools has not yet been demonstrated. The gas pressure in the field is rather low, being about 470 lbs., whereas we would expect from our deep wells in Oklahoma and parts of Canada, where a great deal of natural gas has been found, a rock pressure varying from 800 to 1500 or 1600 lbs. per sq.in.

The natural gas industry was a little slow in the development of the Panhandle

Field for the reason that the pressure was low. Again, while it was known that natural gas was there in large quantities, natural gas usually has been developed as a by-product of the search for oil. In 1925, and early in 1926, the Panhandle district was being developed very rapidly for oil. And thus the natural gas area was marked out.

This is possibly the greatest single natural gas field that has ever been opened up in this country. I say *possibly*, because we will all know more about the Panhandle Field in a year or two. There is approximately a 450,000,000 cu.ft. capacity of pipe lines leading out of that territory at the present time. There is a great deal of gas being used locally in carbon black plants.

The other field, not so large in area but possibly as great a field as the Panhandle, is the Monroe Louisiana Field in Northern Louisiana. This is a deeper and probably a closer sand, and in all likelihood will be a longer-lived field, acre for acre, and will likely produce more gas, acre for acre, than the Panhandle Field. Adjacent to and in fact forming a part of this field is that extension known as the Richmond Parish Field. But in character this field is quite different from the other. The sand yields up its gas readily, and it is not expected that it will be supplying gas for a period of longer than three or four years.

Natural gas is used for carbon black purposes, for domestic purposes in general, for industrial purposes, and for the purpose of taking natural gasoline from it. There now is being extracted from the natural gas about six per cent of all of the gasoline that is used in this country, or that is manufactured, I should say. Following are the percentages: Domestic gas, 22 per cent; carbon black,

Address presented at American Gas Association Convention, Publicity & Advertising Session, Atlantic City, N. J., Oct. 1928.

10 per cent; field operations, 32 per cent; manufacturing, 30 per cent; other uses, 2 per cent; conversion into gasoline, 4 per cent.

In addition to these uses, there are now being manufactured other products from natural gas, such as methyl alcohol. There have also been discovered or perfected new and better methods of making carbon black from natural gas, so that we may expect that a larger percentage of natural gas will be used for that purpose than has been used in the past.

The manufacture of methyl alcohol and creosote from natural gas is in its infancy—just starting in the last two or three years. To just how great an extent that may be developed is a matter of concern to the industry, but one of conjecture, as well.

The field use of gas also is extending. It has been discovered in the last three or four years that by the introduction of natural gas into the oil sands, the viscosity of the oil is reduced; its fluidity is therefore increased as well as its capillary. Oil is produced very much more readily from the gas sands than where it has a water pressure or where it has not been re-pressured by natural gas.

Great quantities of gas are being used for this purpose. The Seminole Oil Pool developed pressure to an extent hitherto unknown by the oil industry, and that practice developed to quite an extent there has been extended to other fields. How much of this gas may be used in the future for that purpose is a question of conjecture. However, oil men everywhere are advocating the conservation of natural gas in all oil fields for the purpose of producing the oil. How much of this gas will be used and thereby taken from our pipe lines for domestic and industrial business is a matter that is difficult to tell.

The great impetus for the financing and developing of the natural gas industry, as I have said, is due possibly to the fact that these two great fields have been

opened up and marked out in the last few years, so that we feel now that we have for the first time in the history of the mid-continent at least two fields that will furnish gas for a great number of years.

Heretofore one of the great difficulties that the natural gas industry has been confronted with, especially in the central West, has been the fact that the fields are comparatively short-lived. Three and a half or four years is a very long life for a field. In fact, most of them are from a year to a year and a half.

Our experience is not different from that of the experience of others, and it shows that we were compelled to replace each year about 50 per cent of our open flow in order to keep our supply up to what it had been.

In the financing of natural gas properties, we think the following points should be considered, and we assume that financial houses would consider them:

First: The probable amount of gas available in any field from which any project is proposed to be built.

Second: Not only the amount but the life of that field.

Third: The markets; how far they are; what uses the gas can be put to; can it be transported to these markets and meet the competition that it there must meet with other fuels?

In the last two or three years, I am afraid that we have gone quite far afield on considerable natural gas financing. I think there has been a feeling that we have found a large field here that will last 15 or 20 years—I have seen some predictions that the Panhandle Field would supply all of the available market for 66 years. To the man who has had experience in the natural gas business, I think he would—to have the feeling of certainty—want to convert one of the "6's" into a "1" and put it before the other "6."

If we were to estimate that a field such as the Panhandle would last and supply an adequate amount of gas to take care of the markets within striking distance of

it for a period of 15 to 20 years, I think it would be a very optimistic estimate, indeed.

Then again, I think a great many financiers have been induced to finance natural gas projects due to the fact that natural gas bonds have been paid off. That is one of the things that we frequently see advertised in connection with natural gas financing: "Natural gas bonds have always been paid off." Well, they have been paid off in the past because those supplying the capital realized that a part of the capital assets—which is the gas in the ground—has been withdrawn and that the only sure way that they have of getting their money back at the time that it comes due is to build up a sufficient reserve to see that the capital is in the treasury to take care of the debt at its maturity.

The fact that the natural gas bonds have been paid off at maturity has been compared with electric light bonds. They said that electric light bonds are never paid off, that if you have a 10 or 15 or 20 year issue, before that issue comes due you call it in and put out a larger issue. That is due to the fact that your load has increased—it has grown as the town has grown. Then there have been new uses found for electricity. It is a manufacturing process. You can manufacture all the electricity that you can sell. It is just a matter of building large enough plants and getting the fuel at a reasonable price and manufacturing it and selling it.

The same is true of manufactured gas, so far as that is concerned. But that is not true of the natural gas situation. When you have a project, you must realize that there is a mining hazard in connection with that business, and that, however long the life of the field may be, there is an end to it—that you can't take the flour out of the barrel continuously without scraping the bottom of the barrel at some time or other.

This mining hazard should be taken into consideration, we think, by every investor, not only in the securities of natu-



*The pipeline takes the product to the market—far or near*

ral gas projects but by the operators themselves.

Again, a natural gas project can be made successful only upon the sale of that product in competition with other fuels in a wide range of uses.

Some manufactured gas men may be surprised to hear a natural gas man say that your natural gas company can scarcely exist without a house heating business. And they would find it very difficult, indeed, to exist without a proper industrial business. You would probably be surprised to find out that your load will vary as much as 14 times between the summer valley and the winter peak in domestic use. Yet, you have behind you in the field the producer, who is demanding that you give him a fair take in the summer time as well as the winter time. Then you find that you must maintain a pipe line capacity of sufficient size to care for your winter load as well as your summer load. And in the summer time, if you are depending solely and alone upon your domestic consumption, you will find that you have but a very poor load factor in your pipeline.

Again, it is true in natural gas properties, as well as manufactured gas properties, that its domain has been pretty largely invaded by the electric companies because of the way of living of the modern family. You will find that gas has been displaced for many household purposes. There is a difference in the mode of living from that which we used

(Continued on page 788)



## Fifteen Win Prizes in Wrinkle Contest

### Results of Annual Competition of Natural Gas Department Announced

**T**HE winners of the 1927-28 Wrinkle Contest of the Natural Gas Department have been announced. Checks for the prizes will be mailed to reach the winners before Christmas.

The Wrinkle Contest is extremely popular with the members of the Natural Gas Department. Hundreds of wrinkles are submitted every year, and the results of the judging are awaited anxiously. A great many extremely valuable suggestions have been made available to the industry through this competition. All wrinkles are submitted to the Wrinkle Editor of *Natural Gas Magazine*, the Department's magazine, and are published in the wrinkle department. Judges are appointed to select the best wrinkles and make the awards.

Following is the list of prize winners of the 1927-28 contest:

#### TRANSMISSION SECTION

First Prize, \$25.00—F. R. King, Box 758, Ranger, Texas. Wrinkle 20—Pressure storage tank to be used in making water column tests on orifice meters.

Second Prize, \$10.00—Ben Wells, Fort Worth Gas Co., Fort Worth, Texas. Wrinkle 5—Valve grinding tool.

Third Prize, \$5.00—F. E. Lechner, Caddo Compressor Station, Lone Star Gas Co., Caddo, Texas. Wrinkle 21—Adjustment for magneto.

#### OFFICE SECTION

First Prize, \$25.00—F. W. Phillips, Ohio Fuel Gas Co., Columbus, Ohio. Wrinkle 4—Table showing internal diameter of pipe.

Second Prize, \$10.00—C. R. Ferree, Fort Worth Gas Co., Fort Worth, Texas. Wrinkle 23—Schedule for figuring rate discounts.

Third Prize, \$5.00—W. J. Gray, Canadian Western Natural Gas, Light, Heat and Power Co., Calgary, Alberta, Canada. Wrinkle 25—Graphic determination of hourly gas requirements and seasonal consumption for heating buildings.

#### DISTRIBUTION SECTION

First Prize, \$25.00—Lemuel C. Valkenburg and William T. James, The Ohio Fuel Gas Co., Nelsonville, Ohio. Wrinkle 7—Meter rack for Tobey.

Second Prize, \$10.00—E. Coleman, Canadian Western Natural Gas Co., Calgary, Alberta, Canada. Wrinkle 26—Method of making sleeves.

Third Prize, \$5.00—Oliver B. Trim, Lone Star Gas Co., Quinto, La. Wrinkle 31—Gas light standard.

#### PRODUCTION SECTION

First Prize, \$25.00—C. F. Huff, J. G. Montgomery and C. A. Pearson, United Natural Gas Co., Oil City, Pa. Wrinkle 34—Casing deep wells in sections and section couplings.

Second Prize, \$10.00—William O. Bickerstaff, Hope Natural Gas Co., Smithville, W. Va. Wrinkle 32—Whistle for locating gas and water in wells.

Third Prize, \$5.00—Joseph Beasley, Jr., Box 355, Barnsdall, Okla. Wrinkle 3—Fixing gasoline gauging pole.

#### SAFETY SECTION

First Prize, \$25.00—John H. Schalek, People's Natural Gas Co., Pittsburgh, Pa. Wrinkle 36—Improving automatic gas range lighter.

Second Prize, \$10.00—Clyde S. Brooks, Seminole Gas Co., Seminole, Okla. Wrinkle 35—Device for testing pipe line gas leaks.

Third Prize, \$5.00—C. M. Van Slyke, Oklahoma Natural Gas Corp., Tulsa, Okla. Wrinkle 28—Simple gate lock.

John H. Schalek, People's Natural Gas Co., Pittsburgh, Pa., winner of first prize in the Safety Section, also receives honorable mention for having submitted numerous valuable ideas and for the clear illustrations that accompanied them.

The judges were E. A. Clark, Oklahoma Natural Gas Corp., Tulsa, Okla.; Keith Clevenger, Empire Companies, Bartlesville, Okla.; and J. L. Foster, Lone Star Gas Co., Dallas, Texas.

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#### NATURAL GAS DEPT. TO MEET IN KANSAS CITY IN MAY

**T**HE annual meeting of the Natural Gas Department of the American Gas Association will be held at Kansas City, Missouri, May 6 to 10, 1928, according to official announcement made by Samuel W. Meals, chairman of the Department.

Kansas City affords excellent facilities for the annual gathering of natural gas men, Mr. Meals said in making the announcement. The city is centrally located, and it is fully expected that the record-breaking attendance of 2000 at the Dallas convention last May will be broken.

Announcements of the convention details will be given in future issues of the A. G. A. MONTHLY, and in "Natural Gas Magazine," the Department's publication.

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## ACCOUNTING SECTION

F. H. PATTERSON, Chairman

J. L. CONOVER, Vice-Chairman

H. W. HARTMAN, Secretary

# New Application Card Record

By JOHN W. SCHERER

Accounting Service Dept., Consolidated Gas, Electric Light & Power Co. of Baltimore, Md.

**T**HE growth of our company has compelled a revision of the application department card file, containing approximately 300,000 cards and 15,000 guide cards and which is in constant daily use. This file shows the service condition of the premises of Baltimore and other territories served with either gas or electricity over an area of 1,064 square miles. All orders pertaining to the service conditions of a customer or prospective customer are noted on the file when issued and are again posted when the orders are completed by the operating department. This is done in order to answer all inquiries of customers and prospective customers quickly and intelligently.

In many respects the cards of this file give us a picture of the customers' premises because they portray the following to us:

1. Date of installation of gas service or date of issuance of service order to install service to the building line of the property.
2. How the premises are to be occupied.
3. The name of the customer or prospective customer.
4. Dates of placing meters in or out of service.
5. Size of meters.
6. Route and folio of account for billing purposes.
7. Gas and electric certificates issued by the City and Fire Underwriters.
8. Electric installation on commercial accounts.
9. Gas and electric schedules applicable to the respective customer.

The main features of the above are 1, a record of all gas services where meters have not been installed; 2, the recording of meter numbers, which become a safeguard in postings; 3, addresses which have been reconciled with the billing department record; 4, additional space,

(Continued on page 811)

EXHIBIT A FRONT

Application Card

Consolidated Gas, Electric Light & Power Co. of Baltimore, Md.

1. Date of installation of gas service or date of issuance of service order to install service to the building line of the property.

2. How the premises are to be occupied.

3. The name of the customer or prospective customer.

4. Dates of placing meters in or out of service.

5. Size of meters.

6. Route and folio of account for billing purposes.

7. Gas and electric certificates issued by the City and Fire Underwriters.

8. Electric installation on commercial accounts.

9. Gas and electric schedules applicable to the respective customer.

EXHIBIT A REVERSE

Application Card

Consolidated Gas, Electric Light & Power Co. of Baltimore, Md.

1. Date of installation of gas service or date of issuance of service order to install service to the building line of the property.

2. How the premises are to be occupied.

3. The name of the customer or prospective customer.

4. Dates of placing meters in or out of service.

5. Size of meters.

6. Route and folio of account for billing purposes.

7. Gas and electric certificates issued by the City and Fire Underwriters.

8. Electric installation on commercial accounts.

9. Gas and electric schedules applicable to the respective customer.

EXHIBIT B FRONT

Application Card

Consolidated Gas, Electric Light & Power Co. of Baltimore, Md.

1. Date of installation of gas service or date of issuance of service order to install service to the building line of the property.

2. How the premises are to be occupied.

3. The name of the customer or prospective customer.

4. Dates of placing meters in or out of service.

5. Size of meters.

6. Route and folio of account for billing purposes.

7. Gas and electric certificates issued by the City and Fire Underwriters.

8. Electric installation on commercial accounts.

9. Gas and electric schedules applicable to the respective customer.

EXHIBIT B REVERSE

Application Card

Consolidated Gas, Electric Light & Power Co. of Baltimore, Md.

1. Date of installation of gas service or date of issuance of service order to install service to the building line of the property.

2. How the premises are to be occupied.

3. The name of the customer or prospective customer.

4. Dates of placing meters in or out of service.

5. Size of meters.

6. Route and folio of account for billing purposes.

7. Gas and electric certificates issued by the City and Fire Underwriters.

8. Electric installation on commercial accounts.

9. Gas and electric schedules applicable to the respective customer.

*Exhibit A is the old; Exhibit B is the new*

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### STATISTICAL BULLETIN AVAILABLE

**C**OPIES of Statistical Bulletin Number 6, entitled, "Annual Statistics of the Manufactured Gas Industry, 1926, 1927," can be had from American Gas Association Headquarters.

This bulletin gives concisely the comparative financial statistics of the manufactured gas industry, a summary of public utility financing for 1927, and comparative statistics for the years 1926-1927.

Portions of the Bulletin have been published in past issues of the A. G. A. MONTHLY.

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### Interstate Co. Wins L. E. Meyers Award

**T**HE L. E. Meyers award, established to recognize distinguished progress of the operating companies of the Middle West Utilities Co., has been won by the Interstate Public Service Co., Indianapolis, Ind., for the year 1927.

The award consists of a cash prize of \$500 to be used in supplementing the service annuity plan of the winning company, together with a certificate and medal.

The Central Illinois Public Service Co. and the Public Service Co. of Oklahoma were tied for second place in the competition.

### New Competition

(Continued from page 772)

accepted idea that the over-all results of rates allowed by regulatory bodies must cover the total cost of doing business. But cost never determined the exact price or value of anything sold in an open competitive market. The efforts to allocate costs, so popular at the present time, will have desirable results in increasing our knowledge of costs, but the serious effort to make class rates according to such allocations is carrying this interesting exercise too far for good business results. It is useful to know for what additional costs a customer of a certain class is really responsible; it is uneconomical and a violation of the trust of other customers to serve him at less. It is also desirable to know and determine the maximum over-all cost that can be allocated to each customer class and the amount of these costs

as customer characteristics vary. Cost analysis of the 'enlightened sort sets the upper and lower limits of class differentiation, but the real problem of rate-making is to determine where between these limits the commodity should be priced in order to secure its widest and highest use.

When, as, and if the conviction that is in you, that gas is a fuel second to none in usefulness and dependability, has been carried to the public at large only this question of what price remains in the way of successfully meeting all manner and type of competition. The gas industry, in the face of increasing competition, whether directly from other fuels or competition of the indirect type which leaves you the customer but makes him a poorer customer, must adopt the tried rules of competitive business. Faulty notions of pricing rising out of an era of regulated monopoly must give way to pricing for the purpose of effective selling. The gas industry must practice economic discrimination, a procedure in rate making which because of its benefits to all will be accepted as unfair to none.

Even with scientific rate-making, the quality of the appliance is a factor, since the cost of gas to the consumer depends upon the efficiency of the appliance as well as upon the price paid for gas. For this reason an increase in the efficiency of the appliance is equivalent to a reduction in the price of gas and the real cost is a factor of no small import in an ever increasingly competitive market. The economies achieved in use are equal in importance to economies in production. To the extent that present day appliances can be adjusted to give satisfactory service with various heating values and under varying gas pressures, they level out inequalities of production, and to that extent assume an unallocated production cost which has a direct influence on the gas rate as well as upon the cost of the appliance.

[THE REMAINDER OF PROF. DORAU'S VALUABLE PAPER WILL APPEAR IN THE JANUARY ISSUE OF THE MONTHLY].



## Advertising Portfolio Available

THE 1928 portfolio of public utility advertising, issued by the Public Utilities Advertising Association, is enjoying an unprecedented popularity, according to officials of the Association.

The new edition contains the best advertisements used by public utility companies during the past year. In the 168 pages of the book are given reproductions of 650 advertisements.

The section devoted to gas company advertising is representative of the splendid advertising now being done by various companies in selling gas service.

The portfolio of advertising can be secured from Donald M. Mackie, Allied Power and Light Co., Jackson, Mich. The price is \$10 per copy, and a special reduction is made for two or more copies.

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## Natural Gas Developments

(Continued from page 783)

to have which must be taken into consideration. For instance, the family used to do the laundry at home; its cooking at home. But now most all of those things are done out.

The change in the way of living and the electric encroachment have had influence in depressing valleys and raising peaks in the winter time.

In order, then, that your supply be properly taken care of and that you may have a proper load factor for your pipeline system, it is necessary that you do something with this gas in the summer time. It is also desirable that you have certain loads of gas on your line that can be cut off during your peak load time in the winter so as to prevent you from building too large a pipe line capacity.

We, therefore, have taken on industrial gas. We sell it in large quantities at very cheap prices. In selling industrial and house heating customers, we are not bound so much by orders of public service commissions—and that is almost entirely true of industrial gas—as we are circumscribed by competition of other fuels. Just now the industrial

gas department of the natural gas business is finding very severe competition, because of the great quantity and cheapness of fuel oil, and the prospect of the continued amount and supply of this oil and its continued cheapness over a number of years is a factor that must be taken into consideration when you are contemplating a new natural gas enterprise or when financial institutions are contemplating the selling of its securities to the public.

It may seem perhaps, that I am putting in all of my time sounding a note of warning.

Natural gas securities that are issued on a company where it has a sufficient gas supply behind it, where it has a sufficient market to take care of that supply, and on the other hand where it can transport it not too far, but have a sufficient load factor in its pipe-line to make a fair earning from it and it is a company that is operating with efficient and experienced natural gas men—can supply to the public as good a form of security as any other that this country affords. The business is a growing one; it is a stable one. But, like all other businesses, it is growing and it is stable when it is built on a solid foundation. The mere fact that at this time there is a great amount of gas being produced, and owing to the fact that the money market is very cheap, improvement in investment and improvement in financing has often been made. And I think that if there are any here present who are interested in the natural gas business you will agree with me that a good deal of improvement in financing has been carried on within the last few years. We who are in the natural gas business, have been in it for a long time, and expect to stay in it not for the purpose of building up something to sell, not for selling securities, but for the purpose of producing, piping, and selling natural gas service—hope that such financing will be more carefully made in the future than it has been in the past.

## MANUFACTURERS SECTION

H. LEIGH WHITELAW, Chairman

F. G. CURFMAN, Vice-Chairman

C. W. BERGHORN, Secretary

# The Chef Hops Off

## And the Sales of Gas Ranges Hop Up



W. L. Plummer

**C**OOK with Gas" and the airplane teamed together in a recent gas range campaign in the Southern States, scored an outstanding success and did much to impress upon the minds of Southerners the many advantages of gas for cooking.

The plan was called "The Flying Chef Sale."

W. L. Plummer, Southern representative of Geo. D. Roper Corp., a captain in the Aviation Division of the United States Army Reserves, and an instructor in stunt flying during the World War, made arrangements for cooking and bak-

ing demonstrations with various gas companies and dealers in the South.

Mr. Plummer, in addition to being an aviator, holding a pilot's license, is also a cook. His plane was lettered with the slogans "The Flying Chef" and "Cook with Gas." In each town where he put on the demonstration, "teaser" advertisements and publicity articles would appear in the newspapers several days before his arrival to arouse interest.

He would fly over the town and land at the airport at a specified hour. Invariably he was greeted by a huge throng of housewives, anxious to meet the "Flying Chef." A reception committee of local hostesses would then speed him away in an automobile to the gas company's office, where he would put on his cooking and baking demonstration. In some cases it



*The Flying Chef and what he flies in*



was necessary to hold the demonstration in an auditorium or some such place to accommodate the crowd.

Preparations for the demonstration were all made in advance by the commercial department of each gas company. The "Flying Chef" did not follow the old beaten path, but instead demonstrated his own pet recipes and passed these on to the eager housewives. During and after the demonstration the "Flying Chef" dropped toy airplanes to the children who attended the demonstration with their parents.

After the demonstration he flew over the town, dropping into the air several thousand circulars. Then the "Flying Chef" would say good-bye and roar away to the next town.

This was not the end, however. It was merely the beginning because after the "Flying Chef" left town, the gas company's commercial department got to work in earnest on a special sale of gas ranges. This sale lasted from one week to a month in each town.

In describing the campaign, P. W. Hopkins, advertising manager of the Geo. D. Roper Corp., says:

"In Atlanta, the program outlined above was enlarged upon and handled through the newspaper, the *Georgian American*. The demonstration was held in Prudence Penny's Health Kitchen and dealers in all lines handling food products and household equipment advertised the 'Flying Chef.' All this was wonderful publicity for the ranges which the Georgia Power Co. was advertising at that time, and it helped to get their sale going in a big way.

"We consider this merchandising event one of the most unique and having the most far reaching results. It must be remembered that this campaign was not advertising gas ranges entirely; it was advertising the slogan, 'Cook with Gas.' There is no question but that the campaign brought the gas company and gas as a cooking fuel to the attention of practically everyone living in the cities visited

by the 'Flying Chef' plane and the attention of the residents was held by the 'Flying Chef' sale which continued after the demonstration was over and the plane had departed. Every city visited by the 'Flying Chef'—in his white suit with silver wings on his chest—tells us that the results of the campaign are very gratifying. Weather conditions now make it impractical for us to carry this campaign into other territories throughout the country for the time being."

### West Virginia Utilities Association Elects

A. C. SPURR, general manager of the Wheeling Traction Co., was elected president of the Public Utilities Association of West Virginia at the convention of that organization recently held at Huntington. Other officers elected were: W. F. Ficklen, C. H. Hardesty and F. M. Hawley, vice-presidents; A. Bliss McCrum, secretary, G. B. Moir, treasurer; J. W. Cummins, assistant treasurer.

**Model office building  
Heats by GAS**

WHAT GAS HEATING can accomplish in economic heating is again demonstrated, by the very recent building of the State Department, New York City. Space heating, light saving, and economical operation of manufacturing processes are among the reasons for the increasing popularity of gas.

Especially in New York, where space is valued by the square inch, there is no economy in raising the price of heat. It is to be expected that the owners of this building will replace the expensive oil gas system by installing a economical system of heating gas. Heat is the basis of making a better supply of fuel.

**Ask Your Gas Company**

Owners and builders of houses or buildings are urged to consider the advantages of gas heating in their building problems. Particularly with regard to reducing the cost of heat with our new gas.

The advantages are obvious. The economy can only be demonstrated. Write for details.

**HOME HEATING DIVISION  
CONSOLIDATED GAS COMPANY OF NEW YORK**

ONE OF THE LEADING GAS COMPANIES IN THE UNITED STATES  
130 West 134th Street—2nd, 3rd and 4th floors  
1855—MORE THAN 100 YEARS OF UNINTERRUPTED PUBLIC SERVICE—1928

**Saves  
SPACE  
LABOR  
AND  
MONEY**

The Consolidated Gas Co. of New York is in the large building heating field and advertises the fact

**INDUSTRIAL GAS SECTION**

J. P. LEINROTH, Chairman

C. C. KRAUSSE, Vice-Chairman

C. W. BERGHORN, Secretary

**A. G. A. Cooperates in Bakers' Exhibit****Gas Research Men and Baking Institute Experts  
Answer the Old Query "When is Bread Baked?"****By M. R. REESER**

Research Investigator, American Institute of Baking, Chicago, Ill.

AS a means toward acquainting the baking industry with what is happening in gas research, the American Institute of Baking, together with the American Gas Association, arranged an attractive booth at the September convention of the American Bakers' Association at the Hotel Stevens, Chicago, Ill.



*Joint exhibit of the American Gas Association and American Institute of Baking at recent Chicago baking convention*

The booth was conducted throughout the week with the object of showing the bakers that the gas research is the most thorough of its kind that has ever been undertaken in studying the application of heat to bread baking. Emphasis was laid on the fact that fundamental problems of the baker are being attacked as well as the many problems concerned with the application of gas as a means of heating ovens.

The theme of the exhibit was:

"When is bread baked?"

A moving electric sign snapped the query to passersby. The first day it said: "When is bread baked? The American Institute of Baking is now working on this very practical problem."

The second day it said:

"When is bread baked? Come and tell us how you find out."

The third day's question was:

"Who can tell us which one of the three loaves on this table is baked right?"

On the fourth day the bakers were challenged in this manner:

"When is bread baked? No one yet has given us the right answer. Can you tell? American Institute of Baking."

Tests were made on the Penetrometer, the instrument devised by A. G. A. research workers to measure numerically the degree of bake, and it was an interesting sight indeed to see many bakers attempt to match their judgment against the accuracy of this machine in determining which loaf of bread should be pronounced as the best baked.

A small wooden model of one of the experimental gas ovens used in research work at the Baking Institute was a part of the exhibit. This oven bakes bread in separate chambers with gas heat distributed in three different ways. In the section representing high temperature radiated gas heat there were installed red lights both at the bottom and top of the oven. For the section representing convected gas heat there was a small fan forcing air through the oven with red ribbons dangling from the point the air entered the oven. These fluttered con-

tinuously. The third section represented indirect low temperature radiated gas heat by means of a series of pipes running crosswise both at the top and bottom of the oven.

Much enthusiasm was aroused among the many visitors who inquired about this somewhat unconventional gas oven. No opportunity was overlooked in impressing upon visitors that in conducting gas research much fact-finding of particular value to bakers in the progressive development of their business was being done. The broadmindedness of this program made a particular appeal to the bakers.

Another interesting feature of the booth, although not directly a part of the research exhibit, was a chart showing gas rates available for bakeries in representative cities. Net rates on the most attractive schedules were used for this purpose.

Great interest was shown by those who studied this chart, a great many bakers apparently realizing for the first time that wholesale gas rates are generally available.

There were also shown photographs of a number of gas ovens, including the large travelers incorporating the very latest features developed in connection with the research work.

To overcome any misgivings as to the real purpose of the baking research, emphasis was laid on the fact that neither the A. G. A. nor the Bakers' Association are advocating a "standard loaf" for the future. That would be impossible and very undesirable. It was pointed out to the bakers that the purpose of this research is to apply gas heat and to construct gas ovens in such a manner that the product that each individual baker must produce for his particular trade can be baked in the most advantageous and economical manner. As the customers of different bakeries vary their tastes according to the locality in which they live, and as other reasons enter in, the flexibility and sureness of gas heat provides the baker with a tool to meet these varying tastes.

The principal thought conveyed to the baking industry by this exhibit was the emphasis placed on the cooperative effort by the two great organizations with the single purpose of developing equipment from which both will realize the greatest benefit. The research idea is rapidly gaining ground in all branches of industry. The bakers of the country, by their intelligent appreciation of the work now in progress, give evidence that they too have pledged their faith to the fundamental necessity of research as an insurance to future development and growth.

### World Fuel Conference Paper On Industrial Gas Is Available

THE paper "Industrial Gas in the United States—Growth and Trends," which was a contribution of the American Gas Association, the American Society of Mechanical Engineers, and The American Society of Heating and Ventilating Engineers, to the World Fuel Conference held recently in London, England, is available in printed form.

The cooperative paper consists of the following chapters:

"Economics of Industrial Fuel Utilization," by Henry O. Loebell; "The Trend of Industrial Gas Utilization," by H. W. Brooks and George Orrok; "The Steel Plant," by C. W. Berghorn; "Heat Treatment of Ferrous Metals," by Nils T. Sellman; "Heat Treatment of Non-Ferrous Metals," by A. M. Apmann; "Ceramics," by Henry L. Read; "Miscellaneous Uses," by J. B. Nealey; "Growth and Future Trends," by J. P. Leinroth.

The paper discusses the growth and trend of industrial gas utilization in the United States. Data and statistics are given showing by classes how the sale of natural, manufactured, coke-oven, and blast-furnace gas has varied by years from 1919 to 1927. The development of modern heat treating as being a step in the continuous process is emphasized by photographs and data showing some of the more modern heating applications in the steel plant, heat treating of ferrous and non-ferrous metals, the preparation of foodstuffs, the manufacture of ceramic articles, and any number of miscellaneous processes. Well-established applications are used in the presentation rather than unique applications which occur infrequently. The advantages which brought about the increase in the use of gaseous fuels are considered in the conclusion of the paper.

**COMMERCIAL SECTION**

G. M. KARSHNER, Chairman

G. E. WHITWELL, Vice-Chairman

J. W. WEST, Jr., Secretary

## Sales Course Receives Hearty Response

Those Enrolled State Course Merits the Participation  
of Every Member Company

By J. W. WEST, JR.

Secretary, Commercial Section, American Gas Association

**A**LTHOUGH the new A. G. A. Course in Domestic Gas Salesmanship has been available to the industry only since October 15, more than 1,000 enrollments have been received at Association Headquarters from utility companies, appliance manufacturers, and dealers from all parts of the United States and Canada, and even from South America.

As was expected, the first enrollments were received from medium and small size companies, followed by participation of the larger companies which required more time in arranging their enrollments. Requests for enrollments (from large companies) are now coming in regularly, and it is believed that between two and three thousand enrollments will have been received by the end of the first year.

Probably the best proof of the value of the course is the fact that more than one third of these companies, after receiving the first unit of the course, forwarded the names of additional persons to be enrolled.

Although no comments have been requested from those enrolled, many have been received both from sales managers and salesmen, indicating that the course fills a long felt need in the industry. Some of these comments are as follows:

From a gas company sales manager:

"This course is compulsory for the manager of this company and all of the salesmen and floormen. The complaint men and meter men who desire to render good service should also take it. Every one of our agents is expected to take the course and other employees of the company may, if they choose, also take it. I

believe that this course is going to do us a lot of good."

Another sales manager says:

"This sales course has a greater potential value than the actual facts it presents to the student. It is a ready-made foundation for an organized sales training system for the company. All of its generalities can be given local application. Its recommendations either confirm the correctness of the existing methods or suggest a better way \* \* \* We went into it with a 100 per cent sales department enrollment, on the basis that the employee pays one half the fee, which is refunded upon satisfactory completion of the course. Because the fees are so reasonable and in view of the expense involved indirectly and often squandered in breaking in and training salesmen, the course will more than pay for itself if it only brings one good new idea to each man."

Another sales manager says:

"The subject of training salesmen is particularly vital with me at this time and I appreciate as never before, the necessity for a thorough and scientific method of training salesmen. From investigation of the first unit, I feel sure this course will go a long way toward increasing the effectiveness of our sales force."

The following comment is typical of those received from a number of the salesmen enrolled:

"I have studied the first unit with interest and profit. We are in an intensive selling campaign as our company is extending their appliance department. I am confident the course will help all of us here and I am very desirous to get the good out of the course at the earliest possible time. I shall appreciate it very much if the next unit is forwarded to me at the earliest possible date."

A substantial number of manufacturers have enrolled their salesmen in the course, and in several instances dealers who are actively selling gas appliances have enrolled their salesmen, after learning of the course from the local gas company.

The contents of the course have been outlined in previous issues of the MONTHLY, but the following is an abbreviated outline of the six units, one of which is forwarded to subscribers each month:

#### UNIT I. FINDING OUT THE CUSTOMER'S NEEDS

- what questions to ask customers and how to ask them in order to start the sale right.
- how to avoid the untimely price question.
- how to find out whether your customer is ready to buy.
- how to make the quick sale.

#### UNIT II. EXPLAINING THE APPLIANCE

- how to explain the construction and operation of appliances simply and quickly.
- how to make your explanation help to sell.
- what makes an appliance give the best results.
- the "why" and "how" of every appliance.
- from the customers' point of view.

#### UNIT III. CONVINCING THE CUSTOMER

- how to make a definite plan for your selling talks.
- how to demonstrate appliances in the most effective way.
- how to use sales equipment.
- the eight factors which make a sales talk effective.
- methods of closing the sale with the average customer.

#### UNIT IV. HANDLING THE DIFFICULT SALE

- answers to typical questions that come up in connection with selling gas and gas appliances.
- how to forestall the usual objections and turn them to selling advantage.
- how to meet competition constructively.
- how to deal with questions regarding price and cost of operation.
- how to do business with various types of customers.

#### UNIT V. BUILDING THE GAS LOAD

- the advantages of being "load-minded"
- showing your customers how to get the best use out of appliances.
- how to advise your customers about their cooking problems.
- how to sell indirectly by "sales-slanting" all of your contacts.

- how to suggest new uses for gas and to sell more gas outlets.

#### UNIT VI. REACHING OUT FOR NEW BUSINESS

- how to locate more prospective customers.
- how to get prospects to come to the store for demonstrations and how to handle follow-up.
- contracting builders, contractors and prospective home-owners.
- how to get the biggest dollar-and-cents return from your time.
- how to develop yourself in a way that will make greater future sales for you.

Local sales meetings are held at which the principles and application of the methods recommended in each unit are discussed. Special meeting manuals are provided for those appointed to conduct these meetings.

Some misunderstanding seems to have arisen to the effect that no enrollments could be received after October 15th, on which date the course was made available to the industry. On the contrary, enrollments can be made at any date, the only requirement being that a sufficient number of students be enrolled at a given time to permit the holding of the sales meetings in connection with each unit in the course.

The members of the committee which have charge of the preparation of the new course are enthusiastic over the good that will come from its use by member companies. In commenting on this, one member of the committee recently said, "I am glad to know that the enrollments received during the first month exceed 1,000, the number which the Association had to guarantee in underwriting the preparation of the course, but review of the text material for the first two or three units convinces me that we should not lessen our efforts to obtain additional enrollments. The units that I have reviewed convince me that the course will prove to be of outstanding benefit to the entire industry in the effort to increase sales. I feel that the course merits a substantial participation by every company which is a member of the Association."



## TECHNICAL SECTION

HARRY E. BATES, Chairman

B. V. PFEIFFER, Vice-Chairman

H. W. HARTMAN, Secretary

## The Home Study Course as An Opportunity

Record Established in Three Years Testifies to Its Value  
to the Gas Industry

By JEROME J. MORGAN

Associate Professor of Chemical Engineering, Columbia University

THE Columbia University Home Study Course on Manufactured Gas, which has more than three years of successful operation as testimony to its value and practicability, has served as a powerful incentive to the young men of the industry. More than 1200 have registered in the course, and 307 have graduated. Surely no one can deny the force which this course is exercising and will continue to exercise in the destiny of the gas industry.

Trained men are an essential part of every industry, and impartial records of all lines of business endeavor show that it is the trained man who secures the maximum reward. The present-day industrial set-up is as simple as it is effective; leaders are placed in positions where they can lead, and followers are delegated to follow and obey orders. The man who is paid to know how to do things, the man on whom the company depends for advice, counsel, and leadership, is the man who knows the business,

SHORTLY after coming to Columbia University in charge of a course on fuels in the Chemical Engineering Department, Prof. Morgan decided that the gas industry offered a promising field for university instruction which would tie-up the theories of chemistry and physics with the facts of practical operation. He therefore sought and obtained permission to spend three months during the summer of 1921 in the Astoria plant of the Consolidated Gas Company of New York. Here he devoted a few weeks to the study of the practical operation of each of the departments, also getting first-hand operating experience. He ran a 12-foot carburetted water gas set, "drew" the coke from inclined retorts, helped determine and adjust the "heats" on the benches, made tests on the purification plant, etc.

Following this he offered during 1922-1925 inclusive, in the summer session of Columbia University, a graduate course on production, distribution and utilization of manufactured gas. This summer session course was attended in all by some 40 to 50 men—mostly from the gas industry. In it Prof. Morgan had the assistance of lecturers from the American Gas Association, and his contact with them served as further preparation for the opportunity offered by the demand for the Home Study Gas Course.

who has secured the knowledge and training necessary. The men who do big things are the men who know how to do big things.

Executives in the gas industry have watched the Columbia course carefully during the past three years, and their interest alone shows full appreciation of the value of this course. Companies which have enrolled large numbers of employees are those companies which are continuing to enroll large numbers. Additional approval is evidenced in the fact that the cadet engineers of a number of companies are required to take the course as a part of their training.

The course was officially started October 1, 1925, when the first installment of the text and syllabus was mailed to students. Back of this, however, is a story of preparation for service and the growth of a demand for this service. This story very well illustrates the importance of being prepared for the opportunity when it knocks at one's door.

The Home Study Department of Columbia University expanded rapidly both in number of students enrolled and in variety of courses offered during 1920 and 1921. This department recognizes that there are many people with a genuine desire for University training for whom attendance at the University is impossible. It offers, under carefully regulated conditions, instruction of University grade by mail. In his desire to enable his department to be of the greatest service, Levering Tyson, Director of the Home Study Department, had already prior to 1925 considered the possibility of technical instruction in such industries as the gas industry and had ascertained that in respect to this particular industry there was a man at Columbia fitted to give such instruction.

The growth of the demand was at the same time making itself felt at Association Headquarters. Following the discontinuation in 1921 of the Trustees' Gas Course which had been conducted so successfully for many years by Alfred E. Forstall, there was a steady and increasing stream of inquiries coming to American Gas Association headquarters for a home study course on manufactured gas. By 1924, the number of these inquiries had reached about 100 a year. It was under the stimulus of these, and during the examination of a Columbia Home Study Catalogue, that Kurwin R. Boyes, secretary of the Committee on Education of Gas Company Employees, conceived the idea of a technical course on Manufactured Gas, sponsored by his committee and conducted by the author in the Home Study Department of Columbia University.

Such is the history of the conception of the Course and of the preparation of the instrumentalities for conducting it. From there on the story is better known. (Proceedings of the American Gas Association 1925, page 213 and 1926, pages 273-5) The Committee on Education of Gas Company Employees under the leadership of Chairman B. J. Mullaney spon-

sored the course and appointed an Advisory Committee consisting of A. E. Forstall, C. E. Paige, F. C. Weber, and W. S. Yard, to co-operate with the author. It was soon found that in addition to writing the syllabus, it was also necessary to write a text book for use as a basis of instruction. This was done and the course was started with an enrollment of 129 students. This number increased as follows: December 31, 1925, 784; 1926, 941; 1927, 1180. It reached its maximum of 1,258 on March 6, 1928, when the first student completed the work. (Owing to the necessity of writing much of the syllabus and text after the course had been started, the material for the final lesson, number 24, did not reach the students until February 27, 1928. Now that the material is all prepared, students enrolled in the course may be able to finish it in considerably less time than was taken by those who enrolled at the beginning.) On November 7, 1928, out of a total enrollment of 1,262, 307 have finished, 205 have dropped out without completing, and 750 are still left on the rolls.

In the 307 students who have completed the course the following companies are represented by five or more members: The Brooklyn Union Gas Co., 37; Consolidated Gas Co. of New York, 25; Detroit City Gas Co., 24; The Public Service Electric & Gas Co., Newark, N. J., 15; The Peoples Gas Light & Coke Co., Chicago, 14; Public Service Co. of Colorado, 12; Malden & Melrose Gas Light Co., nine; Spokane Gas & Fuel Co., six; Milwaukee Gas Light Co., five; Peoples Gas Co. of New Jersey, five; Southern Ontario Gas Co., five; and Toledo Edison Co., five. The remaining students who have completed are scattered among a number of companies. Whether these men come from one of the large companies listed above, or from a small company with only one or two students in the course, every one of them is to be congratulated on his effort and achievement in completing this systematic preparation for greater service to his chosen industry.

## Coal Is Discussed at Carnegie Conference

By A. GORDON KING

Service Engineer, American Gas Association

**S**URROUNDED by the national standards of 20 foreign nations among the official delegates to the Bituminous Coal Conference held at Pittsburgh during the week of Nov. 19, Thomas S. Baker, president of the Carnegie Institute of Technology, welcomed some 2,000 coal specialists and technologists.

The meetings were broad in scope and on an unusually high plane; the program combined, to a very marked degree, that characteristic of promptly applying to practical, every day use, the very latest in pure scientific research, and then commercializing these results for the good of all the nations.

Many motives are readily apparent in such a combination of science and commerce, and of these the outstanding one is the oft expressed desire to put the bituminous coal industry on an efficient basis with regard to both production and utilization.

To the gas industry, which was well represented in the audience as well as on the platform, one of the striking features was the large amount of time devoted to the study of low-temperature carbonization. The papers dealing with this subject were presented by technicians who have carried out large scale plant operations. While it would appear from the nature of the material presented to the conference that the prime purpose of all the studies and research has been in connection with bituminous coal, nevertheless the manufactured gas industry cannot fail to be both affected and intensely interested. Some conclusions of speakers who dealt at length with this interesting development were as follows: M. J. McQuade, describing an installation of the Hayes process, stated that the primary objective was the production of a suitable domestic fuel from highly volatile bituminous coals.



*Prof. Parr*



*Dr. Pott*

W. A. Darrah, when including the production of a high grade domestic fuel among the principal products, further pointed out that such a plant cannot be operated at a profit when the daily throughput is less than 400 to 500 tons of coal. This speaker felt that the low-temperature distillation process, while not fully developed as an industry, offers much of promise to the coal operator in developing additional markets for his product. Yoshisada Ban, of the Japanese Imperial Fuel Research Institute, presented a further progress report as an addendum to Professor Oshima's earlier report at the first Pittsburgh conference two years ago. It was pointed out that practical problems in connection with external and internal heating methods were being solved successfully, and that the best application for Japanese coals would shortly be decided upon.

Director Josef Plasman, of Duisberg, Germany, described the C. T. G. process, stating that by its use there will become available an easily marketable smokeless fuel which should be strong and of large size. W. H. Allen, of the American Gas and Electric Company, New York, dealt with large size, semi-commercial operations of the Carbocite process of low-temperature carbonization.

Mr. Allen feels that the boilers of the central power plant provide an outlet for

the coke from a low-temperature process as a fuel and in permitting the storage of such coke in place of high-volatile coal subject always to deterioration as well as the hazard of spontaneous combustion. Desirable freight charges and a suitable domestic market for the fuel are essential considerations, as well as demand for the resultant gas.

An old friend and active associate of the American Gas Industry appeared in the person of Professor S. W. Parr, of the University of Illinois. Professor Parr, pointing out that at present there are now 250 processes available for low-temperature carbonization, went into most interesting and original research studies of what actually goes on inside the retort during low-temperature distillation. Another approach to this interesting subject was made by R. H. Crozier, of London, who pointed out that Great Britain's oil requirements warrant concentrated study of the production of oil from bituminous coal. He suggests that there is, within the territories of the British Empire, an ample supply of raw materials from which the bulk of his nation's oil requirements may be extracted since there is a reserve of 197 billion tons of bituminous coal, of which 250 million tons are mined annually. This will make that country independent of other oil supplies.

By the end of 1929, long distance transmission of coke oven gas in the Rhenish Westphalian industrial district of Germany will be made through a net work of pipe lines 580 miles in length and will serve a population of about 10,000,000 persons, Dr. Alfred Pott, general director of the Ruhrgas Corp., declared.

Dr. Pott said the system would receive its supply of gas from individual coal mines of the Ruhr district, and announced that the Ruhrgas Corp. had acquired by purchase the existing system of the Rhenish Westphalian Power Corp., consisting of lines totaling 180 miles in length. This, he said, will increase the net of pipe lines to a total of 580 miles, and by the end of 1929 gas supplied through these lines

would amount to about 70 billion cu.ft. annually.

Paying tribute to the United States for its leading position in long distance distribution of natural gas, Dr. Pott declared that the lessons learned in the natural gas districts of this country had been applied by the Germans. He said:

"It was for similar reasons that the enterprise for long distance gas distribution was organized in the region. As natural gas is piped from oil and gas fields to distant communities, so in Germany excessive coke oven gas will be piped from coke plants to distant points for more economical utilization.

"One hundred and twenty million tons of coal were mined in the Ruhr district in 1927 and about 27 million tons of coke were produced. This coke production is the equivalent of about 350 billion cu.ft. of gas. Of these quantities of gas we have been using 45 per cent for heating the coke ovens and about 45 per cent as fuel for the steam plants in the mines."

Dr. Pott said the use of valuable coke oven gas for the generation of steam at the mines and for the heating of coke ovens must today be considered uneconomical. Sufficient quantities of low-grade fuel such as middlings from coal washing plants, coke breeze or other unsalable grades are available, especially at times when business is slack, and can be used with a high degree of efficiency, he said.

The ultimate objective of the Ruhr system, Dr. Pott explained, is to offer the most economical supply of gas to as many parts of Germany as possible.

#### GAS FOR AUTOS

The use of compressed illuminating gas in automobiles, interconnection of distribution facilities and a closer union between the gas and coke interests of France were discussed by Jean Bing, of Paris, representing the Central Committee of Producers and Distillers of Tar in France.

Coal gas is now being used successfully in motor cars, a transport contractor of Paris having recently ordered 12 motor trucks designed for gas use, Mr. Bing declared. One objection to the use of

gas for automobiles has been eliminated, he said, by the recent invention of lighter containers for the fuel.

Speaking of the use of gas in Paris, he said:

"The city of Paris has a limited area and gas consumption may increase only by increasing the individual use of gas. As there are not many industries in Paris, domestic consumption is by far the most important and will always be. Public lighting, however, is done by compressed gas in many districts, and elsewhere gas lamps are still maintained for emergency purposes. Years ago, Paris was divided into many districts, each possessing its own gas works. Through successive amalgamations, distribution has been concentrated in one organization. The city eventually took over the works and the mains, and the whole system is now operated under contract by the Paris Gas Company."

Coking plants, Mr. Bing stated, have become an important source of gas supply in France and now furnish distributing companies with gas in large quantities. Under present regulations, Mr. Bing explained, it is necessary for the distributing concerns also to make provision for the continuance of their service in case of interruption of the coking business.

Distribution of coke oven gas is now made in the 80-mile system from Bethune to Villiers, Bretonneux, and the 25-mile system from Lens, Dourges and Courrières to Lille, Roubaix and Tourcoing. The use of gas in rural communities and in industrial plants has largely increased, he said.

The gas industry in France, according to Mr. Bing, employs 55,000 persons, consumes 5,000,000 tons of coal a year, and the capital investment is close to \$1,000,000,000. Sales of gas coke reach 2,500,000 tons annually.

The foregoing are but few of some of the points brought out at one of the most interesting meetings ever held in which the relation of the manufactured gas industry to another basic industry were clearly brought out and stressed. Time and space limitations prevent a more detailed report at this time; the reader is strongly advised to secure the bound vol-

ume of the proceedings when they become available for they will constitute a modern text book which cannot be disregarded by the forward thinking gas engineer or executive.

## A Little Preachment About Saving Pennies

From the *Literary Digest*, Nov. 17, 1928

TAKE care of the pennies, and the dollars will take care of themselves," is an axiom that has done a great deal of damage, says *The William Feather Magazine*, as quoted by *Commerce and Finance*. "In the first place it isn't true, and in the second place it has led to endless waste of time and energy." Mr. Feather becomes more explicit:

Most of us are busily squeezing pennies out of gas, telephone and electric-light bills, meanwhile tossing away dollars. We shop around to save a quarter of a dollar, using time that has a market value of \$5.

How many pennies and nickels does it take to pay the difference in upkeep, including interest, of a house costing \$10,000 and a house costing \$20,000? In a year the extra overhead cost of living in the \$20,000 house is greater than all the nickels, dimes and quarters the average family can save in five years. And most nickels, dimes and quarters are saved at inconvenience all out of proportion to the amount involved. Imagine foregoing a telephone call to save a nickel, or going without a newspaper to save two cents. There are levels of income where such economies are essential, but for people who patronize manicurists, restaurant hatracks, steam laundries and dry cleaners, they are ridiculous.

The place to save money is at the top of the list, where the amounts are large, and not at the bottom, where they are small.

If a man finds he is living beyond his income to the tune of \$500 a year, what chance has he of breaking even by watching the pennies? He must alter his scheme of life where it hurts most. He must resign from a couple of clubs, tell his wife to let her hair grow, sell his yacht, lose the friendship of the headwaiters, give up one of his automobiles, and possibly trade his house for a smaller one.

Further, the ability laboriously to save pennies does not fit one to invest dollars safely and to advantage. Most of us know others, besides ourselves, who have slowly accumulated \$500 or \$1,000, and then let the whole thing slip quickly away in a worthless investment. Strange as it may seem, the investment of dollars is much harder than the saving of pennies.



## TIDE OF MEN AND AFFAIRS

**JAMES W. DUNBAR**, of New Albany, Indiana, was elected to Congress on November 6, for the third time in ten years. Mr. Dunbar is a former gas man, and his friends in the industry extend from coast to coast.

Mr. Dunbar started lighting gas lamps in 1872, and worked for the gas company in New Albany, Ind., and its successors until 1918. He was secretary of the Western Gas Association from 1894 until 1906, and was secretary of the American Gas Institute from 1906 to 1909. He was elected a director of the American Gas Institute in 1913. He was president of the Indiana Gas Association in 1908, 1909, and 1910, and secretary of this association from 1913 to 1918.

Mr. Dunbar has received the congratulations of his many friends since his re-election on Election Day. With the exception of one term of two years, he is the only Republican who has represented the Third Indiana District in Congress.

**R. G. GUTHRIE**, metallurgist for The Peoples Gas Light & Coke Co., Chicago, Ill., has just been appointed vice-president of the American Society for Steel Treaters.

Mr. Guthrie is widely known in both the utility and iron and steel fields. He holds some very enviable records for his work in micrography and branches of scientific steel research.

**R. C. HOFFMAN, Jr.**, has announced his resignation as president of the Standard Gas Equipment Corporation.

**CHARLES E. CHERRY** has been appointed claim executive of The Brooklyn Union Gas Company to succeed the late George M. Kirchmer.

**HAROLD C. OSMAN**, secretary of The Nugent Steel Castings Company, Chicago, and heretofore in charge of sales for that company, has been appointed works manager.

**HARRY G. ROBINSON**, assistant to the engineer, Essex Division, Gas Department, The Public Service Electric and Gas Co., of Newark, N. J., has been transferred to the Passaic Division as assistant to the engineer there.

**GEORGE H. WARING**, formerly of Grand Rapids, Mich., is president of the Compania General Argentina de Luz y Fuerza, at Rosario, Argentina, South America. The company had a formal opening on September 24.

## Gas Association Dates

THAT organized endeavor in the gas industry is not a new venture is seen in the history of some of the important gas associations of the world. The following are the dates of the organization of some of the better known associations:

### ENGLAND

Waverley Association of Gas Managers	1861
North British Association of Gas Managers	1862
The Institution of Gas Engineers	1863
Manchester Division of Gas Engineers	1870
Southern Association of Gas Engineers and Managers	1875

### GERMANY

German Gas and Water Association	1859
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### UNITED STATES

American Gas Light Association	1873
New England Gas Engineers	1873
Society of Gas Lighting	1875
National Commercial Gas Association	1905
American Gas Institute	1906

Associations in Holland and France were started in 1873 and 1874 respectively.

## In Memoriam

**GEORGE H. JONES**, chairman of board, Standard Oil Co. of N. J., and vice-president, East Ohio Gas Co., died Nov. 22.

**FRANK A. CORBIN**, who has been in the employ of The United Gas Improvement Co., Philadelphia, Pa., since 1910, died recently following an illness of several months.

For the past two years Mr. Corbin was assistant to the gas engineer of the Engineering Development Department of The U. G. I. Co. He was a member of the committee on Gas Dehydration, Technical Section, A. G. A.

**MARTIN A. MICKLEY**, district manager of The Logan Gas Co., Marion, Ohio, died recently after an illness of four weeks. Twenty-five years ago Mr. Mickley became manager of the Marion office, and has been associated with The Logan Gas Company ever since.

**DR. J. A. BOWNOCKER**, geologist, and for the past 33 years a member of the faculty of Ohio State University, died at Columbus, Ohio, on Oct. 20. Dr. Bownocker was an authority on the geology of natural gas.

He was an honorary member of the Natural Gas Association of America, a fellow of the Geological Society of America, and a member of the Ohio Academy of Science. He was a frequent speaker at natural gas meetings.

## Report of Committee on Coordination of Research

By H. C. ABELL  
Chairman

AT the Spring Conference in Atlantic City, June 1, I suggested that, when I accepted the chairmanship of the Committee on Coordination of Scientific and Marketing Research, I had some idea of the magnitude of the undertaking, but after actually considering the problem seriously, I now know that I had not appreciated the importance to the industry of such an undertaking nor the amount of work involved. Since the June meeting I have given more time to the problem, and am now convinced, more than ever, that no committee in the course of one year's preparation can even scratch the surface. It is a stupendous job, never-ending and continuously subject to change in recommendations.

We believe that anything we now suggest is merely tentative and preliminary. There are so many important problems requiring research, which should be undertaken, that any committee or individual will be in a dilemma and a haze to choose the most important problems requiring immediate research from the many which require attention. There must be a choice; otherwise the financial possibilities will be very greatly exceeded. Even choosing a very few of the problems now, we are afraid that the industry may think the committee's recommendations are extravagant. A casual study, however, will easily convince the most critical that the Committee has been most ultra-conservative in its recommendations of needed research for immediate consideration.

It has been suggested by some members of the Committee that we quote some statements from the minutes of the first meeting of the Committee, held March 12, 1928, in Chicago, which indicate the purpose of the Committee, from some

addresses which show a comparison of the gas business with a successful industrial undertaking, mention a few of the many important problems requiring investigation and research with which the industry is confronted, and also quote from the Committee's report to the Advisory Committee, June 1:

The purpose of the Committee, outlined at the meeting of the Committee March 12, is as follows:

"The function of the special Committee on Coordination of Scientific and Marketing Research is to formulate definite policies on which the Association can act in the future on all research matters. It is often difficult to determine the relative value of proposed lines of research to be undertaken by the Association. Much research is being done from time to time throughout the country of which the Association has only the faintest knowledge, nor is the Association in a position to assist in any way other research activities of which it has full knowledge.

"This Committee should gain a complete view of the whole research picture and determine where possible the Association should and could assist in work now under way. In addition it should place the Association on record as to what researches are the most important to the whole industry and should devise ways and means for seeing that researches of importance are undertaken.

"The Committee should look into the future and formulate plans for making the Association an active partner in every piece of research undertaken by its members directly, or through educational institutions."

An analysis and study of the suggested purpose of the Committee proposes the impossible, if interpreted literally. That was not the intention of the draft.

Paragraph 2, first half, states that the (*this*) Committee should gain a complete view of the whole research picture and determine where *possible* the Association should and could assist in work under

way. This statement, with respect to this Committee, should have added "Within the limits of time and resources of the Committee." The second half of the paragraph suggests a most difficult task, that the Committee should place the Association on record as to what researches are of most importance to the whole industry, and should devise ways and means for seeing that researches of importance are undertaken.

This second task is similar to substituting in an indeterminate equation of many unknowns, in order to arrive at the answer. In this case the answer is given us, but all the unknown items to complete the equation are not, and the relative importance of many of the known problems is a matter of opinion. Although the results to the industry of many of them might be estimated in dollars and cents, the task, however, cannot be so easily settled. Even under a most scrutinizing investigation, it would be found most difficult to guess the cost to obtain the commercial result.

The third paragraph states that the Committee should look into the future and formulate plans for making the Association an active partner in every piece of research undertaken by its members directly or through educational institutions.

This paragraph speaks for itself fairly well, so I will not undertake to explain the stupendous task which it imposes.

To answer the research problem properly would require the fulfillment of the duties imposed by these three definitions of purposes. An impossible task for any Committee to accomplish, which you can readily understand, and an impossible undertaking for any association to do, even with unlimited finances back of it.

The changes in the art and in the demands make the research activities a constantly changing program.

The foregoing statement is not made to underrate the importance of the Research Committee, nor to discourage a study of research requirements, but merely to ac-

centuate the importance of research and the great need for full and complete co-operation and coordination of the industry's research activities and to place before this great industry the most important item of all; that is, some method and means of financing.

*First:* A clear-cut comprehensive statement prepared to the extent that such information and material can be collected in accordance with the suggested purpose of this Committee, as promulgated at its initial meeting in Chicago, March 12, 1928.

*Second:* Financing the suggested research needs in accordance with their importance, even to the extent of undertaking research on the greater number suggested to a more or less degree, and to start sometime in the very near and immediate future. Much work is already under way; in those instances, the co-operation of those interested could unquestionably suggest more effective activity to reach results.

The gas companies, as we view the problem, are most interested, because they must keep their 12,000,000 customers, must increase the demands for more uses of gas to them, must increase the number of customers on a more profitable basis as a whole to the industry, must place the industry on a more effective competitive basis with other fuels in order to maintain its present status and to develop as all progressive growing businesses must. An appropriation of only one cent per customer per month, which is apparently insignificant, would amount to the large sum of \$1,440,000 per annum.

From our present perspective that sum appears enormous, yet a thorough investigation of the possibilities and probabilities might indicate that the actual financial results which could be accomplished would make that sum as insignificant as it appears when referring to it as only a cent per customer per month.

The manufacturers of apparatus and appliances of course must contrive to do their part and in proportion to the bene-

fits to be desired by all branches of the gas industry.

Quoting from a statement which was made relative to the requirements of any successful industrial undertaking or business, and a comparison with the gas industry showing that continuous application to take advantage of its opportunities and to hold its own was most necessary, and required constant vigilance and research, the summary following is stated below because it is applicable.

"In order to be successful and to continue to be, it is most necessary for either an industrial undertaking or the gas industry to be constantly alert to its opportunities and possibilities, and each must immediately undertake to reduce the possibilities to practical economical uses."

It has been known, almost since the organization of this Association, that it would be absolutely essential for it at some period in its immediate history, to actively undertake for the industry research activities in numerous lines. The need has grown into an actual demand because it has become more and more evident that there must be a way by which to measure the relative importance of the projects proposed and a more complete knowledge of work already in progress or in contemplation by other agencies.

The Executive Board is constantly requested to provide funds for some research activity, which it is evident is excellent in itself but which might conceivably not be the most important for the industry to undertake at the moment. Sometimes the investigation is already in progress in some quarter on the same subject which will result in duplication should it be undertaken by the Association. This situation has made manifest the necessity for a review of probable demands, in order to attempt to arrange for some definite program to be undertaken, at least as a start.

It is apparent that no definite program for research can be permanent; it must be changed as the demands of the hours vary in changing circumstances. How-

ever, a start must be made and some tentative general policy undertaken; therefore, all available and procurable information upon which to base immediate activities must be procured to the extent possible.

The Secretary of the Committee, Mr. Milener, has collected a large amount of information concerning research projects undertaken since the adoption of our three-five year program of Association activities in May, 1926, either finished, now under way, or in contemplation. Dealing first with the research activities of the Association itself, the industry will unquestionably be surprised at the amount of research now being undertaken through the American Gas Association.

A pamphlet was prepared for the June meeting and was subsequently mailed to the membership. It indicates the volume of the Association's research.

It was easy to obtain much of the information concerning the research activities under the auspices of affiliated associations, mostly at educational institutions.

Some of the gas companies also outlined briefly their existing undertakings along this line. It was not possible to secure an appreciable amount of information from manufacturers who for the most part were unwilling to make a statement as to the projects now under way. Some of them said plainly they felt that in justice to themselves they should not reveal that information until any developments could be covered with patent rights.

In passing we may say that although this position may be maintained by the manufacturers we should in time be able to secure from them at least more details of researches concerning which we are informed are under way. Perhaps all that we can hope to do with most manufacturers' activities is to prevent much duplication and this we should be able to accomplish.

In connection with the foregoing statement, L. R. Nash, of Boston, wrote a letter to the Committee which we think

is of such importance that we take the liberty of quoting from it:

"One phase of it attracted my particular attention and at the suggestion of Major Forward and others with whom I discussed the matter, I am making a general suggestion to you regarding more active cooperation between manufacturers of gas equipment and appliances.

"Your report stated that there was a tendency on the part of manufacturers carrying on research work to withhold its results from others in the same field. This, of course, means duplication of research and experiment and delay in the time when special gas equipment for new industrial purposes is developed to a dependable point.

"I was much impressed at the recent annual meeting of the Chamber of Commerce of the United States with the extent to which 'Team Play for Prosperity,' which was the keynote of the Convention, had been put into effect in various industries. The story of cooperation in the automobile industry was particularly impressive, including a general pooling of patent rights and the absence of litigation involving such rights for many years, interchange of designs and manufacturing methods, and an open door of all factories to visiting competitors. One manufacturer was reported to have offered his perfected design for hydraulic brakes to a competitor who was considering the development of such equipment, in order to avoid the selling of untried equipment to customers, the annoyance which would result from operating unperfected devices, and the possible general discredit of all such devices which may follow.

"If such cooperation could be brought about among gas equipment manufacturers, including joint research in special fields, greater standardization of common appliances and some community of interest in patented devices or processes, both the manufacturers and the gas companies would profit in the long run by the more prompt availability of dependable new devices and processes which the entire industry needs to insure the rapid expansion which all are seeking.

"The gas industry may be unfortunate in the large number of manufacturing units producing gas appliances and the lack of extending 'team play' between them which naturally exists in the case of small units. The electric industry is more fortunate in that respect and as you well know has worked out the problem of cooperation with respect to patents, research and otherwise, on a large and helpful scale. Certain prominent interests in the gas industry may naturally hesi-

tate to make the results of their past research and experience available to smaller manufacturers, but it should not be impossible to bring about a much greater degree of cooperation than has heretofore existed if the manufacturers can be convinced of the long range advantage of more complete cooperation."

The problem the industry is primarily interested in is the most economic production of gas with efficient distribution and the greatest utilization, both competitively with other fuel, and as a healthful, clean, convenient necessity.

These very few words state the ambition and desire of the gas industry and the position which it must attain and continue to maintain.

A few of the most important problems which have been suggested are the following, on some of which Committees are now actively engaged; and others on which some research is being undertaken.

#### GAS GENERATION AND MANUFACTURE

(a) To utilize the present equipment and apparatus to the greatest advantage with or without changes.

(b) Produce equipment to augment or supersede present apparatus and to make gas more efficiently.

(c) New processes, directly or indirectly concerned with the production of gas.

(d) Adjusting present or possible future production methods to plant load characteristics.

(e) Develop and use the natural gas fields in order to obtain greatest utility and use for the public benefit. This is an enormous undertaking which will require a thorough investigation into many most important factors and which might ultimately mean more thorough and detailed regulation.

(f) Injecting oil and water vapor into natural gas which is being distributed to replace manufactured gas and thereby decrease leakage and operating expenses.

(g) Reduce labor costs in both operation and maintenance.

(h) Reduce investment costs.



(i) Reduce the housing costs of all apparatus and equipment.

(j) Develop automatic operating to a greater extent in order to manufacture a more uniform product and to reduce the influence of the personal equation in operation, in addition to reducing over-all costs.

(k) Manufacture a gas of calorific standard for the most economical utilization when considering the gas making material available and to develop the best equipment to accomplish the result.

(l) Carbonize coal at low temperature and show any beneficial results to be obtained from the by-products, which may give gas manufacturing cost a greater credit.

(m) Mix gases of varying gravities and yet produce a product which will meet requirements and especially the needs of the industrial customers.

(n) Tests on effect of thermal content, specific gravity, inerts, etc., on the utilization of various gas and mixtures thereof.

(o) Use up or dispose of the residuals (by-products) of manufactured gas.

(p) Complete gasification of coal.

(q) Investigation of Ford's reported complete gasification process.

(r) Investigation of McLaren Kiln in Scotland.

(s) Combine public utilities, which are manufacturing gas and electricity, in order that the by-product can be used or disposed of to the greatest advantage, depending on market demands.

(t) Combine a gas manufacturing plant with any other industrial undertaking which can use up and dispose of any of its by-products economically, coke or any by-products resulting from the manufacture of gas, and also gas during the time of otherwise minimum sale and use of gas by its customers.

(u) Coal research probably in connection with the Coal Associations, Bureau of Mines, etc., in order to ascertain coals most suitable for manufacturing a com-

mercial gas, at least cost, considering residual disposal.

(v) Study of possibility of utilizing present wasted by-product gas. (Steel plants, refineries, etc.)

(w) Experiments in economical methods of manufacturing large quantities of high b.t.u. gas for peak load conditions (of particular interest to natural gas men).

(x) Use of oxygen instead of air for continuous gas making purposes.

(y) To use the by-product butane and propane from some of the refining oil processes in the manufacture of commercial gas. Experiments in Davenport Iowa, are now under way.

Many other problems of manufacturing and producing gas could be mentioned.

#### CONDENSING AND PURIFYING EQUIPMENT

(a) Improve the efficiency of the condensing equipment in use.

(b) Develop more efficient condensing equipment to be used alone or in connection with equipment in use.

(c) Dehydrate the gas prior to its distribution. This problem must be studied in connection with the distribution problems and in connection with high-pressure transmission and distribution, and the possible savings in investment—operation and maintenance of mains, governors, services and meters.

(d) The reduction of the raw by-products of condensation to profitable finished saleable products and by-products, which is not now being done to any great extent.

(e) Reduce to practice cheaper methods of purification including reduction of investment, space required, operating costs and hazards of operation.

(f) Develop apparatus and equipment to purify gas generated from gas-making material, now considered impossible on account of the high percentage of undesirable constituents present, such as some sulphur compounds, etc.

(g) Removal of organic sulphur.

#### HOLDERS AND STATION METERS AND EQUIPMENT

(a) Decrease the cost of storage, in investment and operation, by the use of high-pressure storage tanks.

(b) The use of cheap investment in generating equipment even with high cost of operations and other methods.

(c) Decrease investment and operating cost of measurement at the generating plant, reduction of ground area required.

(d) Install cheap measuring devices which will only show relative quantities of gas passing during the maximum hours of manufacture or investigate the possibility of the elimination of infrequently used measuring equipment, which would be used only on peak demands.

(e) Register the density and the calorific value of gas constantly and automatically.

#### DISTRIBUTION DEPARTMENT

(a) Use of high-pressure transmission and distribution and the adoption of some of natural gas practices.

(b) Adjusting a given distribution system to a 100 per cent increase in maximum hour due to house heating.

Economics of supplying heavily populated outlying sections of a distribution system.

(c) Long-distance transmission of gas, and the transmission of gas to many communities from a central generating plant.

(d) Economics of long-distance, high-pressure, transmission of gas.

(e) Use of steel pipe in urban transmission and distribution system and its protection to insure adequate useful life with safety.

(f) Protection of service pipes from corrosion.

(g) Develop measuring devices to be used for both high and low pressure in both large and small volumes on a lower investment and operating cost than now available.

(h) Distribute a drier gas if savings in investment and operating costs warrant, and the use of smaller distribution

mains and service connections. Grand Rapids Gas Company of Michigan is now conducting some extensive research work investigating this problem.

(i) Use of high pressures in the utilization of gas and any resulting economics to be obtained.

(j) Investigation of both district and service governors.

(k) Investigation of heavier waters now adaptable to rigid connections.

(l) Development of recording or registering maximum demand meters.

(m) Electrolysis.

(n) Soil corrosion.

#### THE UTILIZATION OF GAS

(a) Investigation of economic possibilities of gas uses in connection with industrial manufacturing processes and off-peak business.

(b) House heating.

(c) House cooling.

(d) Refrigeration.

(e) The development of apparatus and appliances to meet the opportunities found under (a).

(f) The development of combustion and heat treating engineers.

(g) A thorough investigation of rates and charges for gas will generally have to be made coincidentally when any concentrated effort is made to take on all the available gas business, especially that in competition with other fuels and off-peak business.

#### GENERAL

(a) Some method of keeping in touch with foreign practice in all departments.

(b) Rates.

(c) Contact with other associations and societies, governmental bureaus, colleges, etc.

(d) Smoke abatement in cities and communities when using gas versus other fuels.

(e) Advertising.

(f) The Annual Executive Conference of the Association in Atlantic City, June 1 and 2, heard an absorbingly interesting discussion by a distinguished

chemist and engineer, invited for that purpose, concerning possibly radical changes in methods of gas manufacture. Naturally, this presentation was purely speculative at this time and was frankly presented as such. The ideas there presented have subsequently been analyzed and in the opinion of some leaders of the industry the suggestions warrant further research under competent direction to ascertain what the possibilities may be. The Executive Board may be requested to pass upon this matter at an early day.

It is suggested by this Committee that the important presentation should not be lost sight of, and might probably have further serious consideration by the industry in some way. This item is included under General instead of under Manufacture because the Committee believes that any theoretical suggestions in any department should be considered as a problem of general interest.

(g) Headquarters should be the clearing house for all activities. How should this be done? Some plan should be undertaken at a very early date, which plan from time to time can be changed to meet conditions gained through actual experience.

Any gas man will agree that most of these suggestions are good, yet there may be not two who will agree entirely as to their relative importance. It is manifest, however, that as to some of them the Association must at an early day undertake aggressive action for they are vital to the future of our business. We must keep ourselves informed at all times of what is going on and we must accustom our minds to the conviction that the organized industry through its Association must spend increasing amounts of money and devote increasing effort to the solution of the problems of production, distribution, utilization, sales, rate making, financing, accounting and such other policies which go to make the sum total of our industry's life. We must work it out with patient effort by the collection of accurate information, by the use of the laboratories and the brains and the energy which our industry possesses in such volume and only needs to use.

In any such development it is of the utmost importance that headquarters shall be the clearing house of information; that it main-

tain a catalogue and an index thereto of gas research activities so that a picture of the situation may at any time be available. Such catalogue should be published from time to time as may be deemed advisable. Headquarters should also make such field investigations of research activities as may be found necessary and when the occasion demands, investigate the facilities present and prospective of those agencies desiring to undertake our work. It should be a definite Association policy that headquarters be made responsible for this work and equipped to carry it on.

We referred to the report of this Committee presented at the Spring Conference held in Atlantic City, June 1st. We will not take much more of your time reviewing that report, because it is available to you all. We will, however, quote the resolutions passed by the Conference, and the recommendations, because we think that the resolutions and the recommendations should be a part of this report in connection with the action which was taken by the Executive Conference.

#### RESOLUTION ADOPTED AT THE SPRING CONFERENCE

The following resolutions were passed:

"The Executive Conference of the Advisory Council, Executive Board and Invited Guests of the American Gas Association in session in Atlantic City, N. J., June 1, 1928, has noted with profound pleasure and gratification the wide diffusion of the spirit of research throughout the industry. The reports presented to this Conference relating to our present research activities and the very impressive catalogue setting forth the manifold lines of research in which the Association is engaged, testify at once to the response so generally made to the very clear pronouncements on this subject in our Three-Five Year Program adopted by this Conference two years ago, and to the evident demand from all sources for the exact knowledge upon which to build the future of the industry. The Conference considers this result ample proof of the progressive spirit which animates our activities and establishes clearly our purpose.

#### THEREFORE BE IT RESOLVED

"First, that the Conference heartily approves the summary of the Committee on Coordination of Scientific and Marketing Research as prepared by its Chairman, Past President Abell, and presented by F. C. Free-

man of the Committee, and suggests that the Executive Board ratify the recommendation that the Committee proceed with its survey and be prepared to present a program for future coordinated research activities in connection with financing for the next Association year.

"Second, the Conference gives its approval to the engineering and economic survey and extends its congratulations to the Technical Section and to the Section Chairman, Mr. Beckjord, and the Committee Chairman, Mr. Bates, upon the work already accomplished and expressed the belief that this Committee's labors should be continued indefinitely.

"Third, we endorse the program of the Committee on Industrial Gas Research as presented by its Chairman, F. J. Rutledge, in the belief that its activities are upon a sound foundation and adequately planned for a continuation of this most valuable and necessary work.

"Fourth, the Conference has heard with interest and pleasure the account given by H. C. Cooper, Chairman of the Main Technical Committee of the Natural Gas Department, of the research work as begun by the Natural Gas Association of America and continued by the American Gas Association. This will be of the greatest value to the industry and we favor its development upon the enlarged scale recommended by the Managing Committee of that Department.

"Fifth, the Conference believes that it would be true economy to accelerate our research in mixed gases at the Cleveland Laboratory as recommended by the Committee headed by F. C. Weber so that the program may be completed within two years instead of four."

The Committee has sought from its own members and from other sources suggestions as to other important lines of research which the Association can well undertake. Among these are the following:

That the Association provide for a small but carefully selected organization to put full time on developing accounting methods by the use of machines, it being the opinion of many that tremendous annual savings would result in a short time due to their work.

No request has been made by the Section for any research funds.

In the line of industrial gas research, that committee now has under consideration the following new projects, which will be undertaken if the investigation now being made shows that to be advisable. Various kinds of ceramic firing, firing of sheet steel enamelware, development of sectional high pressure gas boilers, stereotype furnaces, and extensive study of effect of gas atmosphere on steel at heat treating temperatures.

The Industrial Gas Research Committee, which has been provided with \$100,000 per year for five years, keeps in touch with the Industrial Section as to its recommendations for research.

No additional funds have been requested for research by the Industrial Section.

#### *The Commercial Section*

In the domestic appliance field it has been suggested that the Laboratory extend its activities to include all classifications of appliances not yet covered by approval requirements. Among those to which it is felt that particular effort should be directed is hotel ranges and burners and controls for converting coal-designed, house heating furnaces to gas. The success of the existing approval requirements amply justify their extension to wider fields. The General Requirements Committee has now under way approval requirements for laundry equipment and hot plates, and the only request from this Section for research funds is the following:

An appropriation of \$10,000 for the purpose of studying and developing a gas operated house cooling unit to be used in connection with gas, house heating equipment. This sum would be expended under the supervision of the House Cooling Committee of that section according to the plan outlined by it.

Preliminary research on house cooling with gas has been strongly urged. While commercial equipment is not now available, some progress is being made by manufacturing companies and it is felt that the Association should be prepared to lend its assistance when needed.

House cooling would provide some additional sales of gas at a time of the year when the output is the lowest. The Committee believes that \$10,000 should be provided.

We understand that a manufacturing concern, who probably know more about water condensation, air saturation tables, etc., have worked on this problem to some extent, are anxious to undertake a thorough research, and state that they will give the gas industry all the benefit of the investigation, in order to assist to the maximum the development of this particular undertaking.

Your Committee thinks this suggestion should be investigated for what it is worth.

Among other suggested problems for study are the properties of heat transfer from non-luminous gas flames especially by radiation. It is thought that this may eventually lead to radical improvement in the design of many domestic and industrial appliances.

The broad subject of prevention of corrosion in all kinds of flue pipe, either by the use of resistive materials or coatings or by the

admission of excess air, is a rather pressing problem and no doubt should be given consideration.

Consideration might well be given it, by extending the research on mixed gases to include not only the effect on burners and combustion characteristics but also the effect on materials being heated. This problem is now facing several gas companies.

Your Committee, upon request from the Laboratory and others, suggests that a sum of \$20,000 to accelerate the research now being conducted in mixed gases at the Cleveland Laboratory be authorized. Your Committee believes that the results of this work is of sufficient importance to the industry that an extraordinary effort should be made to expedite the time of completion as rapidly as possible.

Still another subject that might lend itself to more efficient utilization is the conservation of heat from industrial furnaces. This development might take the form of air heaters or waste heat boilers. Some work along this line has been done, but practically no information is available for publication.

The Committee Engineering and Economic Survey of the Gas Industry requests that there be set aside the sum of \$25,000 to be appropriated for the study of pipe joints to be expended by the Sub-Committee on Pipe Joints of the Technical Section. This committee further requests that there be provided \$10,000 for a research in corrosion, pipe coating, etc. This work if undertaken will involve cooperation with several other interested organizations.

It is estimated that at least over \$13,000,000 is lost annually by gas companies distributing manufactured gas in gas lost and unaccounted for, at the holder cost of gas. It is impossible to estimate the amount lost through actual leakage, but it is unquestionably between 25 per cent and 50 per cent, which entails an annual loss of a very large amount of money. The amount of money actually lost due to the same cause when distributing natural gas must also be very large. Your Committee believes that the \$25,000 per annum proposed expenditures should be allowed and that it should continue each year for a period of three years at the same rate.

Your Committee hesitates to hazard a guess relative to the loss per annum to gas distributing companies on account of the deterioration of steel pipe, services, etc., due to the fact that the underground piping is inadequately protected. The same is true of transmission line systems. In addition to loss from pipe replacement, there is a very material loss due to interruption of gas service.

Your Committee believes that the pipe cov-

ering, coating and corrosion investigation will take a long period of investigation and that the appropriation of \$10,000 per year for three years should be favorably passed on.

The sum of \$15,000 could profitably be set aside for the encouragement of gas research in those institutions having regular courses in gas engineering.

A sum of \$15,000 for the year has been suggested to encourage gas research work in institutions conducting regular gas engineering courses. This limits the contribution at present to only two—Purdue University and Johns Hopkins. Other institutions have given much attention to gas subjects, such as the Universities of Wisconsin and Michigan and others. Therefore, the Committee feels that the amount might be distributed profitably to more than two institutions, depending upon the importance of the research to the gas industry, and not necessarily confined to those institutions conducting gas courses as such.

The Committee favors the granting of \$2,500 during the next year to the Institute of Land Economics and Public Utilities, of Northwestern University, in the belief that it is in this manner helping to promote the sound study of the economics affecting our business and supporting a suitable means for disseminating the information thus secured. The Institute operates on a yearly budget, a large portion of which is contributed by firms and organizations interested in its findings. The Institute is under the leadership of Professor Richard T. Ely, an economist of national standing, and has for a number of years conducted investigations and published reports and bulletins of a high order. The Institute does not divide its work up into industries as such, but considers the more common aspects of all public utilities, using the individual industries as examples. The American Gas Association contributed \$2,500 toward the budget of the Institute in 1926.

This committee has not included in its recommendations the appropriation for coal research, because the Executive Board, at the request of the Technical Section on March 13th, authorized an expenditure of not exceeding \$5,000 to defray the expenses of a survey by the Bureau of Mines of the gas, coke and by-product making qualities of American coals. The first portion of this work, that of a survey of existing carbonizing apparatus, has been completed and the report has been made to the appropriate committee of the Technical Section and



will be published as a Convention report. Since this project was authorized by the Executive Board it only remains for the Committee to recommend the re-appropriation in the new Association year, of the unexpended balance as of September 30, of the \$5,000 fund.

In compliance with the Board's approval of the Technical Section's recommendation, the officers of the Association have presented to the budget authorities a request for an appropriation by Congress of \$100,000 per annum for a contemplated period of five years to permit the Bureau of Mines to conduct research and experiments in the gas, coke and by-product making properties of various coals.

Your Committee realizes that probably much more than this could be profitably spent on this work, but believes that a trial with this sum is sufficient.

Your Committee has studied the research activities of other associations and societies, such as the American Society of Mechanical Engineers, the American Petroleum Institute and others, including some of the many research problems of the gas industry, but nevertheless has been unable to formulate any definite recommendations respecting the handling of research activities by the gas industry, and their relative importance. It is evident in many branches of industrial development, such as the automobile, many committees of the American Society of Mechanical Engineers, the Electrical industry, etc., all under competitive development, that there is much constructive cooperation, which has produced, and is still influencing a very material reduction in development costs, producing a much better product to the advantage of the ultimate consumer. We believe that the gas apparatus and appliance manufacturers with the support and assistance of the gas companies through some cooperative arrangement could do more than is now apparent, to develop every branch and use of the gas industry.

There is unquestionably a very decided improvement over past conditions. The

highly competitive purchasing done by the gas companies may have some detrimental influence on development.

A thorough study of the various relationships could be made from an absolutely unprejudiced viewpoint. Such a study and investigation along constructive lines would unquestionably produce a more sympathetic understanding between the various appliance and apparatus manufacturers themselves and also between the gas companies.

Many suggested improvements in both old and new methods, appliances and apparatus could in this way be initiated and experiments undertaken in the laboratory and finally reduced to an actual operating trial by such cooperation. All gas research work should be closely followed and coordinated by representatives of Headquarters Staff. No committee can by itself do this work properly and efficiently, in fact a committee can do practically nothing without the assistance of paid investigators.

A complete list of all research work which might influence results beneficially should be tabulated and graphically shown, each under its proper subdivision. Some method should be devised to indicate which is necessary, which important, which is contemplated, what is actually being worked on and what has been finished.

Of course, some problems can never be solved; research must continue to keep pace with the advancing procession. All research must be progressive and some of necessity will probably be perpetuating. All of this should be produced in a comprehensive picture. Estimates could be made in some instances which would indicate the possible savings in operating expenses, investments and benefits if certain results could be accomplished. Such statements, even if highly theoretical and almost approaching the dream state, might indicate some of the most important research problems and the importance of their solution, which would help to put the gas industry in a better

competitive situation with other fuels and increase the gas industry's usefulness and importance in many ways. This committee has not suggested an appropriation of any amount to be spent at headquarters on research work and investigation, nor does it make any specific recommendation how the research problem could be undertaken most advantageously.

It does, however, recommend that a staff at headquarters should be organized to give its undivided time and effort to the research problem.

Probably some committee, members of which are to be drawn from the Executive Board and membership generally, should be chosen to assist in formulating a plan, organizing an initial headquarters staff and to then suggest an initial appropriation.

Your Committee on Coordination of Scientific and Marketing Research is greatly embarrassed by not being able to meet your instructions to any greater extent than merely to accentuate that which was already known; that is, the importance of research undertaking, the necessity of most active cooperation and coordination of the whole industry and the need for financial support. If the committee's report is sufficiently clear and comprehensive to make the industry know the facts, so that immediate acts will indicate an appreciation of the industry's responsibilities, it will feel that its efforts have not been in vain and will then know it has no excuses or apologies to make, for it has at least initiated a most important job, which the gas industry cannot side step and ignore.

### Application Card Record

(Continued from page 785)

making the information legible and more serviceable.

The card size has been increased from 3" x 5" to 4" x 6", because of additional information required to better serve our customers and to improve interdepartment operations; but no more floor area is required because wood files have been replaced by steel files which will accom-

modate a greater number of cards of the larger size.

With the improved effectiveness comes also greater convenience of the clerks who operate the file. On the back of each unit a hinged ledge has been placed which makes a convenient writing surface and enables the clerks to be seated in performing their duties, thereby reducing fatigue. A new type steel roller chair which is fully adjustable to the convenience of each clerk has also been procured.

Two files constitute a unit of work and by placing the back of one unit with the front of another, there is less confusion among the clerks in making reference to the records.

The file as installed, in our opinion, ranks among the best among the larger utility companies in the East.

### Laboratory Seal

(Continued from page 752)

tions of the general policy that has been agreed upon, or report the misuse of or the misinterpretation of the Laboratory Approval Seal to Headquarters, such reports to be made available to the Laboratory Managing Committee which in conjunction with the Association Counsel shall take such steps as may be deemed expedient or possible to prevent and stop such misuse of the Laboratory Seal, subject of course, to the Executive Board's approval.

In relation to all of these matters where we are recommending that the Laboratory Managing Committee be charged with certain responsibilities, it is assumed that action by that committee as to policy and practice shall always be subject to the Executive Board's approval. With that understanding, it is recommended that the Laboratory Managing Committee be charged with the responsibility of putting into effect the recommendations which have been made in relation to the future use of the Laboratory Approval Seal, and that "putting into effect" shall include the fixing of a time when the new use of the seal with the legend heretofore described shall become effective.

## On the Firing Line of A. G. A. Activities

(Continued from page 766)

especially well qualified to conduct the work in hand.

The new chairmen are:

Committee on Cooperation with Educational Institutions, W. Griffin Gribbel, Philadelphia, Pa.

Committee on Education of Gas Company Employees, E. H. Bauer, Worcester, Mass.

Accident Prevention Committee, E. J. Kreh, The Equitable Gas Co., Pittsburgh, Pa.

### Hot Plate and Laundry Stove Requirements

**A**PPROVAL requirements for the testing of hot plates and laundry stoves have been approved by the Executive Board of the A. G. A., and the Testing Laboratory will proceed with the testing of these important appliances in the near future.

### Executive Board Meetings

**T**HE schedule of Executive Board meetings for the coming Association year is as follows:

Jan. 9—at New York, N. Y.

Feb. 6—at Los Angeles, Calif.

Mar. 13—at New York, N. Y.

Apr. 17—at New York, N. Y.

May 31—probably at Atlantic City, N. J.

Sept. 11—at New York, N. Y.

Oct. 14—at Atlantic City, N. J.

### Commercial Section Lauds New Dealer Magazine

**A**T the organization meeting of the Managing Committee of the Commercial Section, held at Cleveland, Ohio, on Nov. 2, G. M. Karshner, chairman, asked support for the new magazine, *Gas Appliance Merchandising*, whose editorial policy will be to promote greater appliance sales by dealers.

Mr. Karshner said that the factor that has the greatest influence for success or failure in the promotion of such sales outlets is that of education.

"The merchant and his sales people must be educated to sell good gas appliances, those which have A. G. A. specifications," Mr. Karshner continued. "The dealers must be schooled in the fundamental principles of advertising, display, development of prospects, etc. It is also essential that they be taught to install appliances in such a way that the customer will receive the maximum of satisfaction, and the gas company the minimum of future complaints."

"The Robbins Publishing Co., after consulting with many gas men, has decided to publish a magazine that the gas companies may use for educating dealers in the basic principles of cor-

rect merchandising. This magazine, *Gas Appliance Merchandising*, will appear for the first time early in 1929."

Following discussion the Section passed the following resolution:

"RESOLVED that it is the sense of this meeting that the industry needs a magazine of the type of *Gas Appliance Merchandising* for trade extension and for educational purposes, and that gas companies should support the new publication by sending it to dealers in their cities who are now selling gas appliances or should sell them."

### Attention—Companies Changing to Natural Gas

**C**OMPANIES which are turning from manufactured gas to natural gas service should be interested in the United States Bureau of Mines Technical Paper No. 325, which is entitled, "Natural Gas Manual for the Home."

A. G. A. Headquarters has a limited number of copies of this pamphlet available. The price for a single copy is ten cents. In lots of 50 and more, the price is three and one-half cents each.

### Annual Convention Dates

**T**HE Eleventh Annual Convention of the American Gas Association will be held at Atlantic City, N. J., the week of October 14, 1929. The Executive Board of the Association has formally sanctioned this date.

### Many Foreign Visitors at A. G. A. Headquarters

**I**N addition to the many American gas men who have called at A. G. A. Headquarters during the past few weeks, there have been almost a score of English, European, and South American visitors.

Prominent among these foreign visitors are the following:

Jean Bing, engineer of Mines, Paris, France

Joseph Loiret, Meudon, France.

Dr. Karl Bunte, Karlsruhe, Germany.

Torcuato De Tella, Buenos Aires, South America.

Dr. Tillnetz, Frankfurt, Germany.

Baroness Borpowska, Poland.

Dr. Cecil H. Lander, London, England.

### Honorary Members

**T**HE following are the honorary members of the American Gas Association, as elected at the recent convention:

John Terrace, President of the Institution of Gas Engineers, Lower Sydenham, London.

Robert Ellissen, President of the Union

Syndicale de l'Industrie du Gaz en France, Paris, France.

T. H. Jones, President of the British Commercial Gas Association, London, England.

W. Grimm, President of the Swiss Society of Gas and Water Engineers, St. Gallen, Switzerland.

H. Schutte, President of the German Gas and Water Association, Berlin, Germany.

### Convention Attendance

THE official report of the registration at the Tenth Annual Convention of the A. G. A. held at Atlantic City, last October, was 4,516. This figure represented an increase of 364 over the previous high water mark established at the 1926 convention.

### Holders and Aeronautics

THE Executive Board has authorized President Fogg to appoint a committee on Gas Holders and Aeronautics. The personnel of this committee will be reported in a future issue of the MONTHLY.

### Note On Government In Business

IF the General Motors Corporation had an absolute monopoly of the making of all the automobiles in the world, and its management lapsed into a bureaucracy such as may be found in any government department, I venture to say that within ten years it would not be paying dividends to its stockholders, and the world would be using a decreasing number of motor cars.—By John J. Raskob, writing in the July, 1928, issue of the *Magazine of Business*.

### Dr. Lander Explains

(Continued from page 751)

England the gas companies have a definite ammonia disposal problem. The competition with synthetic ammonia is keen.

The Fuel Research Board Experimental Station is the largest institution of its kind in the world devoted solely to fuel problems. It has a staff of approximately 140 men, spends some \$400,000 a year and was built at a cost of \$1,000,000. Low-temperature carbonization is only one of the many problems being studied under Dr. Lander. Other problems include a survey of the properties of all the coals in England, methods of investigation and analysis, research in high-temperature carbonization, particularly work on the effect of sizing coals at this time, hydrogenation of coal, fundamental investigation of the water gas process, internal combustion engines, boilers, etc.

Dr. Lander showed keen interest in the description of the various research programs of the American gas industry, and he said that in England most research was on manufacture rather than utilization.

## Where Is the Gas Man Heading

Editorial in November Issue of *Chemical and Metallurgical Engineering*

THERE has been a radical change of attitude in the city-gas industry within the last five years with respect to chemical engineering methods and technology. In the immediate post-war period the gas man used relatively little of the new machinery or new plant methods common to other chemical engineering industries. Today every development of this sort is quickly seized upon and keenly appreciated.

The change in attitude toward chemical engineering economies is no less striking. The recent meeting of the American Gas Association exhibited that industry in its technical division devoting a large part of its time to such questions as—What kind of raw materials should we use? What new materials and processes are available? What is the ideal gas plant? These questions and others were attacked with reasoning characteristic of the chemical engineering mind.

This modified policy has probably resulted in large measure from the fact that the association now holds annually a Production Conference and a Distribution Conference at which the details of technology can be considered. But whatever the cause, the result has been a much broader treatment and a much more comprehensive view of the industry at the annual meeting than was usual some years ago.

This is an exceedingly fortunate development. It augurs good things for the industry as a whole. *Chem. & Met.* congratulates the industry, not only upon the fact, but upon the recognition of the fact, as it was stated by one of the most prominent committee chairmen: "It is very gratifying to know that the statement made a year or so ago to the effect that 'the real competition in which the gas industry is involved is that between research and tradition' is becoming less and less true."

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### OUR NEW MEMBERS

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#### GAS COMPANY MEMBERS

Fort Lauderdale Florida Gas Co., Charles E. Starr, Maxwell Arcade, Fort Lauderdale, Fla.

Central Penna Gas Co., F. L. Murphy, Gen. Mgr., Bellefonte, Pa.

#### MANUFACTURER COMPANY MEMBERS

Bingham & Taylor Corp., Joe H. Gardner, Sec'y-Treas., 575 Howard St., Buffalo, N. Y.  
Lapp Products Corp., J. A. Carey, V.-P., 299 Madison Ave., New York, N. Y.

Alexander Milburn Co., The, A. F. Jenkins, Pres., 1416-28 West Baltimore St., Baltimore, Md.

Western Stove Co., J. J. Vaughn, Sec'y-  
Mgr., Box 125, Culver City, Calif.

#### INDIVIDUAL MEMBERS

Jones, William T., Public Service Elec. & Gas Co., 105 Irving St., Rahway, N. J.  
Strobell, George R., 43 Stockton Place, East Orange, N. J.  
Miller, Jean H., Nanuet, N. Y.  
Durfee, E. P., Hamlin Company, 17 Cedar St., New York, N. Y.  
Walker, W. Stockton, 144-35 Amity St., Flushing, N. Y.  
Armbruster, Fred W., Jr., General Gas Furnace Co., 1326 Hudson Ave., Rochester, N. Y.  
Borden, Frank P., Public Service Elec. & Gas Co., Harrison Gas Works, Harrison, N. J.  
Weed, Frederick H., Gannett, Seelye & Fleming, Harrisburg, Pa.  
Cherry, Charles E., Brooklyn Union Gas Co., 176 Remsen St., Brooklyn, N. Y.  
Noppel, E. P., Electric Bond & Share Co., 2 Rector St., New York, N. Y.  
Edge, Ellis W., 3 West Orange Drive, West Orange, N. J.  
Fyfe, Arthur W., Jr., Consolidated Gas Co., 130 E. 15th St., New York, N. Y.  
Neglia, Fred J., Public Service Elec. & Gas Co., 184 Park Ave., Rutherford, N. J.  
Freer, Frank, Jr., Public Service Elec. & Gas Co., 80 Park Place, Newark, N. J.  
Olwine, J. Calvin, Public Service Elec. & Gas Co., 162 Smith St., Perth Amboy, N. J.  
Wells, William J., Public Service Elec. & Gas Co., 946 Broad St., Newark, N. J.  
Presbrey, Raymond L., Boston Cons. Gas Co., Rover St., Everett, Mass.  
Valentine, William E., Rainey-Wood Coke Co., 52 Vanderbilt Ave., New York, N. Y.  
Smith, A. M., General Steel Wares Ltd., 199 River St., Toronto, Canada.  
Beggs, Charles W., 249 E. 4th St., Plainfield, N. J.  
Emanuel, Robert S., P. O. Box 66, Harrison, N. J.  
Walsh, George C., Consolidated Gas Co., 408 E. 111th St., New York, N. Y.  
Vetter, Otto J., Consolidated Gas Co., 212 West 57th St., New York, N. Y.  
Griffith, Earl Leonard, Consolidated Gas Co., 130 E. 15th St., New York, N. Y.  
Croswell, Mabel (Miss), Consolidated Gas Co., 212 E. 57th St., New York, N. Y.  
deBakhtiar, Boris, The United Gas Improvement Co., 1401 Arch St., Phila., Pa.  
Janeway, Price W., Jr., United Gas Improvement Co., Broad & Arch Sts., Phila., Pa.  
Opperman, Richard H., The United Gas Improvement Co., 1401 Arch St., Phila., Pa.  
Sa Lessa, Francisco de, Government Service, Souza Lima 77, Rio de Janeiro, Brazil.  
Doak, James Henry, The Eastern Connecticut Power Co., Putnam, Conn.  
Rolston, Glenn E., The U. G. I. Company, Broad & Arch St., Phila., Pa.  
Davis, Charles R., Savannah Gas Company, Savannah, Ga.  
Mailley, John P., National Electric Power Co., 57 William Street, New York, N. Y.

Quad, Louis Reusee, 75 Liberty Place, Palisades Park, N. J.  
Hebble, Howard E., 31 Vernon Terrace, East Orange, N. J.  
Wright, Donald K., 2 So. Clinton St., Trenton, N. J.  
Burnette, H. B., Consolidated Gas Co., 21 Audubon Ave., New York, N. Y.  
Kidde, Regnar, Room 2516, 11 West 42nd St., New York, N. Y.  
Donohue, A. J., 5534 Oxford Ct., Phila., Pa.  
Lambe, Edwin E., Cities Service Gas Co., Bartlesville, Okla.  
Dickinson, Arthur H., 441 Beacon St., Boston, Mass.  
Riley, Edward C., The Bryant Heater Mfg. Co., 116 S. Michigan Ave., Chicago, Ill.  
Clewell, Raymond L., Bryant Heater & Mfg. Co., 116 So. Michigan Ave., Chicago, Ill.  
Van Hook, Harry B., American Radiator Co., 310 Boulevard of the Allies, Pittsburgh, Pa.  
Speck, Martin L., Scranton-Spring Brook Water Service Co., 135 Jefferson Ave., Scranton, Pa.  
Bees, Joseph, Scranton-Spring Brook Water Service Co., 135 Jefferson Ave., Scranton, Pa.  
Vicker, Harold A., Scranton-Spring Brook Water Service Co., 135 Jefferson Ave., Scranton, Pa.  
Boylan, Matthew A., Scranton-Spring Brook Water Service Co., 135 Jefferson Ave., Scranton, Pa.  
Steward, Lucetta K., The Central Gas Co., Woodsfield, Ohio.  
Walker, Bennett, The Pittsburgh Water Heater Co., P. O. Box 1109, Pittsburgh, Pa.  
Grimm, I. C., The Central Gas Company, Woodsfield, Ohio.  
Swaska, George K., The Pittsburgh Water Heater Co., P. O. Box 1109, Pittsburgh, Pa.  
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Black, Raymond, 25 Park St., Montclair, N. J.  
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Driscoll, Edward A., 760 Vine St., Elizabeth, N. J.  
Schorn, Fred W., Public Service Electric & Gas Co., 80 Park Place, Newark, N. J.  
Kelly, Clarence V., Westchester Lighting Co., Mount Vernon, N. Y.  
Thompson, L. Earl, Great Lakes Utilities Corp., Le Mars, Iowa.  
Curtice, Leon H., National Gas Appliance Manufacturers Assn., 486 Sheridan Rd., Evanston, Ill.  
McCorkle, Lester Eugene, Public Service Electric & Gas Co., 80 Park Place, Newark, N. J.  
Robinson, Kenneth I., Public Service Electric & Gas Co., 80 Park Place, Newark, N. J.  
Churen, Harry, The Philadelphia Gas Works Co., 1401 Arch St., Philadelphia, Pa.  
Mead, George A., The Philadelphia Gas Works Co., 1401 Arch St., Philadelphia, Pa.



## Associations Affiliated with A. G. A.

### Canadian Gas Association

Pres.—Frank Elcock, Ottawa Gas Co., Ottawa, Ont.  
Sec.-Tr.—G. W. Allen, 7 Astley Avenue, Toronto.  
Conv., June 13 & 14, 1929, Ottawa, Ont.

### Empire State Gas and Electric Association

Pres.—Chas. S. Ruffner, Mohawk Power Corp., Albany, N. Y.  
Chairman Gas Section—H. E. Merrill, Republic Light & Power Co., Tonawanda, N. Y.  
Sec.—C. H. B. Chapin, Grand Central Terminal, New York, N. Y.  
Conv., 1929.

### Illinois Gas Association

Pres.—J. A. Strawn, Central Light Co., Peoria, Ill.  
Sec.-Tr.—R. V. Prather, 305 Illinois Mine Workers Bldg., Springfield, Ill.  
Conv., 1929.

### Indiana Gas Association

Pres.—T. J. Kelly, Northern Indiana Public Service Co., Fort Wayne, Ind.  
Sec.-Tr.—F. W. Budd, Central Indiana Gas Co., Muncie, Ind.  
Conv., 1929.

### Michigan Gas Association

Pres.—F. A. Newton, Consumers Power Co., Jackson, Mich.  
Sec.-Tr.—A. G. Schroeder, Grand Rapids Gas Light Co., Grand Rapids, Mich.  
Conv., July 1 to 3, 1929, Mackinac Island, Mich.

### Mid West Gas Association

Pres.—H. R. Sterrett, Des Moines Gas Co., Des Moines, Iowa.  
Sec.-Tr.—A. W. Schmidt, Des Moines Gas Co., Des Moines, Iowa.  
Conv., 1929.

### Missouri Association of Public Utilities

Pres.—A. E. Reynolds, Springfield Gas & Electric Co., Springfield, Mo.  
Sec.-Tr.—F. D. Beardslee, 315 N. 12th St., St. Louis, Mo.  
Conv., 1929.

### New England Gas Association

Pres.—G. W. Stiles, Portland Gas Light Co., Portland, Me.  
Exec. Sec.—C. D. Williams, 41 Mount Vernon St., Boston, Mass.  
Chairman Operating Div.—H. Vittinghoff, Stone & Webster, Inc., Boston, Mass.  
Secretary Operating Div.—H. G. Taylor, Lawrence Gas & Electric Co., Lawrence, Mass.  
Gov. Sales Div.—M. B. Webber, Marlboro-Hudson Gas Co., Boston, Mass.  
Sec.-Tr. Sales Div.—J. H. Sumner, 719 Massachusetts Ave., Cambridge, Mass.  
Pres. Industrial Div.—E. W. Berchtold, Boston Con. Gas Co., Boston, Mass.  
Sec.-Tr. Industrial Div.—L. E. Wagner, Providence Gas Co., Providence, R. I.  
Chairman Acctg. Div.—W. A. Doering, Boston Con. Gas Co., Boston, Mass.  
Sec.-Treas. Acctg. Div.—Otto Price, Boston Con. Gas Co., Boston, Mass.  
Chairman Manufacturers Div.—Merle E. Abbott, Glenwood Range Co., Taunton, Mass.  
Sec.-Treas. Manufacturers Div.—J. H. McPherson, 7 Water St., Boston, Mass.  
Conv., Feb. 6 & 7, 1929, Hotel Statler, Boston, Mass.

\* Deceased.

### New Jersey Gas Association

Pres.—H. A. Stockton, County Gas Co., Atlantic Highlands, N. J.  
Sec.-Tr.—Louis Stoecker, Public Service Electric & Gas Co., Newark, N. J.  
Conv., 1929.

### Ohio Gas and Oil Men's Association

Pres.—J. J. McMahon, The East Ohio Gas Co., Cleveland, O.  
Sec.-Tr.—Wm. H. Thompson, 811 First National Bank Bldg., Columbus, O.  
Conv., 1929.

### Oklahoma Utilities Association

Pres.—L. W. Scherer, United Telephone Corp., Yale, Okla.  
Mgr.—E. F. McKay, 1020 Petroleum Bldg., Oklahoma City, Okla.  
Conv., March 12-14, 1929, Oklahoma City, Okla.

### Pacific Coast Gas Association

Pres.—C. H. Dickey, Southern Counties Gas Co., Los Angeles, Calif.  
Exec. Sec.—Clifford Johnstone, 447 Sutter St., San Francisco, Calif.  
Conv., 1929.

### Pennsylvania Gas Association

Pres.—Mark Pendleton, Pennsylvania Gas & Electric Co., York, Pa.  
Sec.-Tr.—Geo. L. Cullen, Harrisburg Gas Co., Harrisburg, Pa.  
Conv., 1929.

### Pennsylvania Natural Gas Men's Association

Pres.—George W. Ratcliffe, Columbia Gas & Electric Corp., Pittsburgh, Pa.  
Sec.-Tr.—E. J. Stephany, Equitable Gas Co., Pittsburgh, Pa.  
Conv., 1929.

### Southern Gas Association

Pres.—Roy A. Zeigler, Jacksonville Gas Co., Jacksonville, Fla.  
Sec.-Tr.—J. P. Connolly, 141 Meeting St., Charleston, S. C.  
Conv., 1929.

### Southwestern Public Service Association

Pres.—W. H. Burke, Stone & Webster, Inc., Houston, Texas.  
Chairman Gas Section—R. A. McNeese, San Antonio Public Service Co., San Antonio, Texas.  
Sec.—E. N. Willis, 403 Slaughter Bldg., Dallas, Texas.  
Conv., 1929.

### The Public Utilities Association of Virginia

Pres.—A. W. Higgins, Virginia Public Service Co., Charlottesville, Va.  
Sec.—A. B. Tunis, 301 East Grace St., Richmond, Va.  
Conv., 1929.

### Wisconsin Utilities Association

Pres.—C. R. Phenicie, Wisconsin Public Service Corp., Green Bay, Wis.  
Exec. Sec.—J. N. Cadby, 432 Broadway, Milwaukee, Wis.  
Conv., 1929.

Eleventh Annual Convention of the American Gas Association  
Atlantic City, N. J.

October 14-18, 1929

Annual Meeting of Natural Gas Department  
Kansas City, Mo.

May 6-10, 1929

## Employment Bureau

(Address All Communications to Key Number)

### SERVICES REQUIRED

**GAS ENGINEER:** Company manufacturing gas plant apparatus has an opening for a gas engineer. Must be familiar with water gas plant operation and apparatus. About 30 to 35 years of age. Give detailed experience and salary expected in applying. Address A. G. A.  
Key No. 0117.

**WANTED—Gas Sales Engineer** experienced in application of gas, particularly in industrial processes. Address American Gas Association stating age, experience and salary desired.  
Key No. 0118.

**WANTED—By large producing coal and coke company,** Combustion Engineer familiar with gas, by-product plant and boiler operation, to cooperate with Sales Department. Prefer man with experience in New England and Eastern Territories. State reference and detail experience. Address A. G. A.  
Key No. 0121.

**GAS SALES ENGINEER—Large Eastern Utility** Company desires engineering graduate, preferably with experience in application of gas to industrial processes. Please state age, education, experience, and salary desired. Address A. G. A.  
Key No. 0122.

**WANTED—Gas Engineer—Must have technical training** and be experienced in small gas plant operation and design, also design of distribution systems. State salary and give complete experience first letter. Address A. G. A.  
Key No. 0126.

**A LARGE GAS COMPANY** in an Eastern city wants an industrial gas man of some experience. Address A. G. A.  
Key No. 0130.

**A LARGE Midwest Utility** requires the services of two industrial gas sales engineers, familiar with all kinds of industrial gas heating processes. Please state age, education, experience and salary desired. Address A. G. A.  
Key No. 0131.

**WANTED.** Young man, preferably married, as Manager of Billing and Collecting Dept. Office personnel, including meter readers, consisting of 10. Man experienced in stub accounting preferred. Total gas, electric and water accounts, 14,000. Location, southern New England. Give detailed experience and salary expected. Address A. G. A.  
Key No. 0132.

### SERVICES OFFERED

**TECHNICAL MAN** now employed desires new location. 38 years of age. 16 years' experience in coal and water gas manufacture, sales and distribution; also one year's experience with a coal company sampling coal in mines, from cars and special research work. Address A. G. A.  
Key No. 259.

**STUDENT ENGINEER** desires position with gas company where he can finish his course and with opportunity for advancement. Address A. G. A.  
Key No. 260.

**HOUSE HEATING MANAGER—Desires a change** from present location. Thoroughly experienced in gas heating and also gas refrigeration. Technical graduate, 26 years old. Single. Available within reasonable length of time after notice is given to present employers. Address A. G. A.  
Key No. 262.

**WANTED:—Position with Stove Company.** Am thoroughly familiar with manufacture, designing and perfecting gas ranges, heaters and coal ranges. A-1 references. Address A. G. A.  
Key No. 263.

**CHEMICAL ENGINEER—38 years of age—15 years' experience** in water and Coal Gas Plant operation, construction, distribution, and By-Product Plant work, desires connection as Gas Engineer with a holding company, or large individual gas company. Address A. G. A.  
Key No. 265.

**WANTED—Position as manager of a small gas company** or assistant superintendent of a larger company, by practical man, 36 years old. Married. 12 years' experience including water gas plant operator both high and low pressure, also all branches of distribution. Best of references. Address A. G. A.  
Key No. 266.

**GAS ENGINEER** with twenty years' wide, practical experience in the design, construction and operation of coal, water, coke oven, and natural gas plants and distribution systems located in all parts of the U. S. A., is desirous of an opportunity in a similar capacity with consulting engineer or holding company. Experience covers large, medium and small properties. Technical education. Address A. G. A.  
Key No. 268.

**WANTED—Position as manager of industrial department** as well as house heating, commercial, hotel and restaurant work. Now with large company in above capacity. Middle age, good experience and reference. Can handle large job. Address A. G. A.  
Key No. 269.

**MANAGER OR GENERAL SUPERINTENDENT—25 years' experience** in the construction, manufacture, distribution, valuation, public relations, and sales. Both coal and water gas, high- and low-pressure. Age 40 and married. Good references. Address A. G. A.  
Key No. 270.

**ENGINEER** with nineteen years experience in carbureted water gas manufacture and proven record for efficiency and organization. Address A. G. A.  
Key No. 272.

**EXECUTIVE, graduate engineer, 15 years experience,** construction, operation, management, mostly electric light and power public utilities. Schooled by a financial leader of the industry, especially in reduction of operating expenses. Knowledge of state regulatory requirements. Would be interested in holding company appointment, preferably salary plus percentage of effected savings per annum. Address A. G. A.  
Key No. 273.

**OPPORTUNITY** to secure services of experienced gas range salesman as representative of manufacturer in Eastern Territory. Knowledge of gas appliances covered by 15 years experience, both local and travelling. Utility and general trade. Available January 1, 1929. Address A. G. A.  
Key No. 276.





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